Seminari 7

Matematika za ekonomiste 2

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Sadržaj

prvi zadatak

Zadatak 1

Dane su cijene dvaju dobara u ovisnosti o količinama proizvodnje $p_1 = 15 - Q_1$ *i* $p_2 = 10 - Q_2$ *te funkcija troškova*

$$T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5.$$

Pronađite optimalnu kombinaciju proizvodnje tako da dobit bude maksimalna. Koliko iznosi maksimalna dobit?

Rješenje

$$\text{DOBIT (ili PROFIT)} = \text{PRIHOD} - \text{TROŠKOVI}$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

Rješenje

$$\text{DOBIT (ili PROFIT)} = \text{PRIHOD} - \text{TROŠKOVI}$$

- Prihod kao funkcija količine proizvodnje

$$P(Q_1, Q_2) =$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

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- Prihod kao funkcija količine proizvodnje

$$P(Q_1, Q_2) = p_1 Q_1$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

Rješenje

$$\text{DOBIT (ili PROFIT)} = \text{PRIHOD} - \text{TROŠKOVI}$$

- Prihod kao funkcija količine proizvodnje

$$P(Q_1, Q_2) = p_1 Q_1 +$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

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- Prihod kao funkcija količine proizvodnje

$$P(Q_1, Q_2) = p_1 Q_1 + p_2 Q_2 = (15 - Q_1)Q_1$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

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$$P(Q_1, Q_2) = p_1 Q_1 + p_2 Q_2 = (15 - Q_1)Q_1 + (10 - Q_2)Q_2$$

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$$P(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 15Q_1 + 10Q_2$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

Rješenje

$$\text{DOBIT (ili PROFIT)} = \text{PRIHOD} - \text{TROŠKOVI}$$

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- Dobit kao funkcija količine proizvodnje

$$D(Q_1, Q_2) =$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

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$$\text{DOBIT (ili PROFIT)} = \text{PRIHOD} - \text{TROŠKOVI}$$

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$$D(Q_1, Q_2) = P(Q_1, Q_2) - T(Q_1, Q_2)$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

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- Dobit kao funkcija količine proizvodnje

$$D(Q_1, Q_2) = P(Q_1, Q_2) - T(Q_1, Q_2)$$
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Rješenje

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$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

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$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

Rješenje

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$$D(Q_1, Q_2) = P(Q_1, Q_2) - T(Q_1, Q_2)$$

$$D(Q_1, Q_2) = \left(-Q_1^2 - Q_2^2 + 15Q_1 + 10Q_2\right) - \left(5Q_1 + 4Q_2 + 5\right)$$

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- Dobit kao funkcija količine proizvodnje

$$D(Q_1, Q_2) = P(Q_1, Q_2) - T(Q_1, Q_2)$$
$$D(Q_1, Q_2) = \left(-Q_1^2 - Q_2^2 + 15Q_1 + 10Q_2\right) - \left(5Q_1 + 4Q_2 + 5\right)$$
$$D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5$$

$\boxed{p_1 = 15 - Q_1}$ $\boxed{p_2 = 10 - Q_2}$ $\boxed{T(Q_1, Q_2) = 5Q_1 + 4Q_2 + 5}$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} =$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10$$

$$D_{Q_2} =$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10$$
$$D_{Q_2} = -2Q_2 + 6$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad\qquad -2Q_1 + 10 = 0$$

$$D_{Q_2} = -2Q_2 + 6 \qquad\qquad -2Q_2 + 6 = 0$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$\begin{array}{l|l} D_{Q_1} = -2Q_1 + 10 & -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5 \\ D_{Q_2} = -2Q_2 + 6 & -2Q_2 + 6 = 0 \end{array}$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$D_{Q_1} = -2Q_1 + 10$	$-2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$
$D_{Q_2} = -2Q_2 + 6$	$-2Q_2 + 6 = 0 \longrightarrow Q_2 = 3$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

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Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

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Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1 Q_1} =$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

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Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1Q_1} = -2$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

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Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

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$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

$$D_{Q_2} = -2Q_2 + 6 \qquad -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3$$

Stacionarna točka: $\overset{Q_1\ Q_2}{(5, 3)}$

$$D_{Q_1 Q_1} = -2$$

$$D_{Q_1 Q_2} = 0$$

$$D_{Q_2 Q_2} =$$

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$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

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Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1Q_1} = -2$$

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$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

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Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1Q_1} = -2$$

$$D_{Q_1Q_2} = 0$$

$$D_{Q_2Q_2} = -2$$

$$H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix}$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

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Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1Q_1} = -2$$

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$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad\qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

$$D_{Q_2} = -2Q_2 + 6 \qquad\qquad -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3$$

Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1Q_1} = -2$$

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$$H(\overset{Q_1}{5}, \overset{Q_2}{3}) =$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$
\begin{array}{l|l}
D_{Q_1} = -2Q_1 + 10 & -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5 \\
D_{Q_2} = -2Q_2 + 6 & -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3
\end{array}
$$

Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1Q_1} = -2$$
$$D_{Q_1Q_2} = 0$$
$$D_{Q_2Q_2} = -2$$

$$H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H(\overset{Q_1}{5}, \overset{Q_2}{3}) = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$\begin{array}{ll|l} D_{Q_1} &= -2Q_1 + 10 & -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5 \\ D_{Q_2} &= -2Q_2 + 6 & -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3 \end{array}$$

Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1 Q_1} = -2$$

$$D_{Q_1 Q_2} = 0$$

$$D_{Q_2 Q_2} = -2$$

$$H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1 Q_1} & D_{Q_1 Q_2} \\ D_{Q_1 Q_2} & D_{Q_2 Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H(\overset{Q_1}{5}, \overset{Q_2}{3}) = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix} = 4$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad\qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

$$D_{Q_2} = -2Q_2 + 6 \qquad\qquad -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3$$

Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$D_{Q_1Q_1} = -2$$

$$D_{Q_1Q_2} = 0$$

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$$H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H(\overset{Q_1}{5}, \overset{Q_2}{3}) = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix} = 4 > 0$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$\begin{aligned} D_{Q_1} &= -2Q_1 + 10 \\ D_{Q_2} &= -2Q_2 + 6 \end{aligned} \quad \left| \quad \begin{aligned} -2Q_1 + 10 = 0 &\longrightarrow Q_1 = 5 \\ -2Q_2 + 6 = 0 &\longrightarrow Q_2 = 3 \end{aligned} \right.$$

Stacionarna točka: $\overset{Q_1\ Q_2}{(5, 3)}$

$$\begin{aligned} D_{Q_1Q_1} &= -2 \\ D_{Q_1Q_2} &= 0 \\ D_{Q_2Q_2} &= -2 \end{aligned} \qquad H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

< 0

$$H\overset{Q_1\ Q_2}{(5, 3)} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix} = 4 > 0$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

$$D_{Q_2} = -2Q_2 + 6 \qquad -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3$$

Stacionarna točka: $\overset{Q_1\ Q_2}{(5, 3)}$

$$D_{Q_1Q_1} = -2$$

$$D_{Q_1Q_2} = 0$$

$$D_{Q_2Q_2} = -2$$

$$H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H\overset{Q_1\ Q_2}{(5, 3)} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix} = 4 > 0 \longrightarrow \text{točka lokalnog maksimuma}$$

< 0

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$\begin{aligned} D_{Q_1} &= -2Q_1 + 10 \\ D_{Q_2} &= -2Q_2 + 6 \end{aligned} \qquad \Bigg| \qquad \begin{aligned} -2Q_1 + 10 = 0 &\longrightarrow Q_1 = 5 \\ -2Q_2 + 6 = 0 &\longrightarrow Q_2 = 3 \end{aligned}$$

Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$\begin{aligned} D_{Q_1Q_1} &= -2 \\ D_{Q_1Q_2} &= 0 \\ D_{Q_2Q_2} &= -2 \end{aligned} \qquad H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H(\overset{Q_1}{5}, \overset{Q_2}{3}) = \begin{vmatrix} \overset{<0}{-2} & 0 \\ 0 & -2 \end{vmatrix} = 4 > 0 \longrightarrow \text{točka lokalnog maksimuma}$$

$$D(\overset{Q_1}{5}, \overset{Q_2}{3}) =$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$\begin{aligned} D_{Q_1} &= -2Q_1 + 10 \\ D_{Q_2} &= -2Q_2 + 6 \end{aligned} \qquad \Bigg| \qquad \begin{aligned} -2Q_1 + 10 = 0 &\longrightarrow Q_1 = 5 \\ -2Q_2 + 6 = 0 &\longrightarrow Q_2 = 3 \end{aligned}$$

Stacionarna točka: $(\overset{Q_1}{5}, \overset{Q_2}{3})$

$$\begin{aligned} D_{Q_1Q_1} &= -2 \\ D_{Q_1Q_2} &= 0 \\ D_{Q_2Q_2} &= -2 \end{aligned} \qquad H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H(\overset{Q_1}{5}, \overset{Q_2}{3}) = \begin{vmatrix} \overset{<0}{-2} & 0 \\ 0 & -2 \end{vmatrix} = 4 > 0 \longrightarrow \text{točka lokalnog maksimuma}$$

$$D(\overset{Q_1}{5}, \overset{Q_2}{3}) = -5^2 - 3^2 + 10 \cdot 5 + 6 \cdot 3 - 5$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad\qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

$$D_{Q_2} = -2Q_2 + 6 \qquad\qquad -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3$$

Stacionarna točka: $\overset{Q_1\ Q_2}{(5, 3)}$

$$D_{Q_1Q_1} = -2$$

$$D_{Q_1Q_2} = 0$$

$$D_{Q_2Q_2} = -2$$

$$H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H\overset{Q_1\ Q_2}{(5, 3)} = \begin{vmatrix} \overset{<0}{-2} & 0 \\ 0 & -2 \end{vmatrix} = 4 > 0 \longrightarrow \text{točka lokalnog maksimuma}$$

$$D\overset{Q_1\ Q_2}{(5, 3)} = -5^2 - 3^2 + 10 \cdot 5 + 6 \cdot 3 - 5 = 29$$

$$\boxed{D(Q_1, Q_2) = -Q_1^2 - Q_2^2 + 10Q_1 + 6Q_2 - 5}$$

$$D_{Q_1} = -2Q_1 + 10 \qquad -2Q_1 + 10 = 0 \longrightarrow Q_1 = 5$$

$$D_{Q_2} = -2Q_2 + 6 \qquad -2Q_2 + 6 = 0 \longrightarrow Q_2 = 3$$

Stacionarna točka: $\overset{Q_1\ Q_2}{(5, 3)}$

Maksimalna dobit iznosi 29 novčanih jedinica, a postiže se za $Q_1 = 5$ i $Q_2 = 3$.

$$D_{Q_1Q_1} = -2$$

$$D_{Q_1Q_2} = 0$$

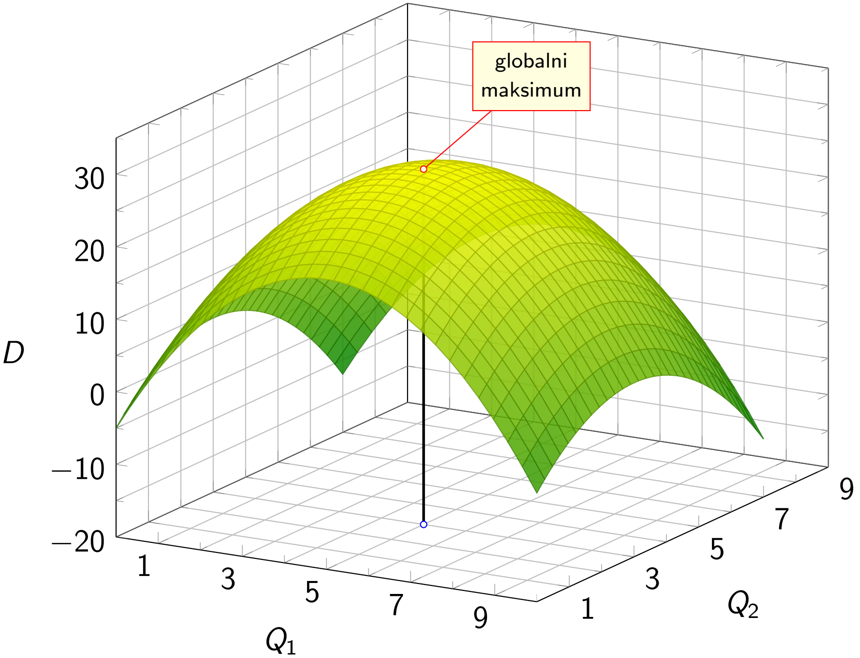
$$D_{Q_2Q_2} = -2$$

$$H(Q_1, Q_2) = \begin{vmatrix} D_{Q_1Q_1} & D_{Q_1Q_2} \\ D_{Q_1Q_2} & D_{Q_2Q_2} \end{vmatrix} = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix}$$

$$H(\overset{Q_1\ Q_2}{5, 3}) = \begin{vmatrix} -2 & 0 \\ 0 & -2 \end{vmatrix} = 4 > 0 \longrightarrow \text{točka lokalnog maksimuma}$$

< 0

$$D(\overset{Q_1\ Q_2}{5, 3}) = -5^2 - 3^2 + 10 \cdot 5 + 6 \cdot 3 - 5 = 29$$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drugi zadatak

Zadatak 2

Zadana je funkcija troškova

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2$$

u ovisnosti o količinama proizvodnje dva proizvoda. Odredite uz koju kombinaciju proizvodnje su troškovi minimalni ako je ukupna proizvodnja jednaka 20 *proizvoda.*

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow Q_2 = 20 - Q_1$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1,$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1)$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) =$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet

$Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1)$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 =$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$

$f'(Q_1) =$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$

$f'(Q_1) = 4Q_1 - 20$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$Q_1 = 5$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$f(Q_1) = 2Q_1^2 - 20Q_1 + 400 \qquad f''(Q_1) =$

$f'(Q_1) = 4Q_1 - 20$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400 \qquad f''(Q_1) = 4$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

$$f''(Q_1) = 4$$

$$f''(5) = 4$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

$$f''(Q_1) = 4$$

$$f''(5) = 4 > 0$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$

$f'(Q_1) = 4Q_1 - 20$

$4Q_1 - 20 = 0$

$\boxed{Q_1 = 5}$

$f''(Q_1) = 4$

$f''(5) = 4 > 0 \longrightarrow$ minimum

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

$$f''(Q_1) = 4$$

$$f''(5) = 4 > 0 \longrightarrow \text{minimum}$$

$$Q_2 =$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

$$f''(Q_1) = 4$$

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$$Q_2 = 20 - 5$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

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$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$

$f'(Q_1) = 4Q_1 - 20$

$4Q_1 - 20 = 0$

$\boxed{Q_1 = 5}$

$f''(Q_1) = 4$

$f''(5) = 4 > 0 \longrightarrow$ minimum

$Q_2 = 20 - 5 \qquad Q_2 = 15$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet

$$Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$$

$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

$$f''(Q_1) = 4$$

$$f''(5) = 4 > 0 \longrightarrow \text{minimum}$$

$$Q_2 = 20 - 5$$

$$\boxed{Q_2 = 15}$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet

$Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

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$f'(Q_1) = 4Q_1 - 20$

$4Q_1 - 20 = 0$

$\boxed{Q_1 = 5}$

$f''(Q_1) = 4$

$f''(5) = 4 > 0 \longrightarrow$ minimum

$Q_2 = 20 - 5$

$\boxed{Q_2 = 15}$

Stacionarna točka:

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet

$Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

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$f'(Q_1) = 4Q_1 - 20$

$4Q_1 - 20 = 0$

$\boxed{Q_1 = 5}$

$f''(Q_1) = 4$

$f''(5) = 4 > 0 \longrightarrow$ minimum

$Q_2 = 20 - 5$

$\boxed{Q_2 = 15}$

Stacionarna točka: $(5, 15)$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet

$Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$

$f'(Q_1) = 4Q_1 - 20$

$4Q_1 - 20 = 0$

$\boxed{Q_1 = 5}$

$f''(Q_1) = 4$

$f''(5) = 4 > 0 \longrightarrow$ minimum

$Q_2 = 20 - 5$

$\boxed{Q_2 = 15}$

Stacionarna točka: $(5, 15)$

$$T(\overset{Q_1}{5}, \overset{Q_2}{15}) =$$

Rješenje

$$T(Q_1, Q_2) = 2Q_1^2 + Q_1Q_2 + Q_2^2 \longleftarrow \text{funkcija}$$

$$Q_1 + Q_2 = 20 \longleftarrow \text{uvjet} \qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

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$$f'(Q_1) = 4Q_1 - 20$$

$$4Q_1 - 20 = 0$$

$$\boxed{Q_1 = 5}$$

$$f''(Q_1) = 4$$

$$f''(5) = 4 > 0 \longrightarrow \text{minimum}$$

$$Q_2 = 20 - 5 \qquad \boxed{Q_2 = 15}$$

Stacionarna točka: $(5, 15)$

$$T(\overset{Q_1}{5}, \overset{Q_2}{15}) = 2 \cdot 5^2 + 5 \cdot 15 + 15^2$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet

$Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

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$4Q_1 - 20 = 0$

$\boxed{Q_1 = 5}$

$f''(Q_1) = 4$

$f''(5) = 4 > 0 \longrightarrow$ minimum

$Q_2 = 20 - 5$

$\boxed{Q_2 = 15}$

Stacionarna točka: $(5, 15)$

$$T(\overset{Q_1}{5}, \overset{Q_2}{15}) = 2 \cdot 5^2 + 5 \cdot 15 + 15^2 = 350$$

Rješenje

$T(Q_1, Q_2) = 2Q_1^2 + Q_1 Q_2 + Q_2^2 \longleftarrow$ funkcija

$Q_1 + Q_2 = 20 \longleftarrow$ uvjet $\qquad Q_1 + Q_2 = 20 \longrightarrow \boxed{Q_2 = 20 - Q_1}$

$$T(Q_1, 20 - Q_1) = 2Q_1^2 + Q_1 \cdot (20 - Q_1) + (20 - Q_1)^2 =$$

$$= 2Q_1^2 + 20Q_1 - Q_1^2 + 400 - 40Q_1 + Q_1^2 = 2Q_1^2 - 20Q_1 + 400$$

$f(Q_1) = 2Q_1^2 - 20Q_1 + 400$

$f'(Q_1) = 4Q_1 - 20$

$4Q_1 - 20 = 0$

$\boxed{Q_1 = 5}$

$f''(Q_1) = 4$

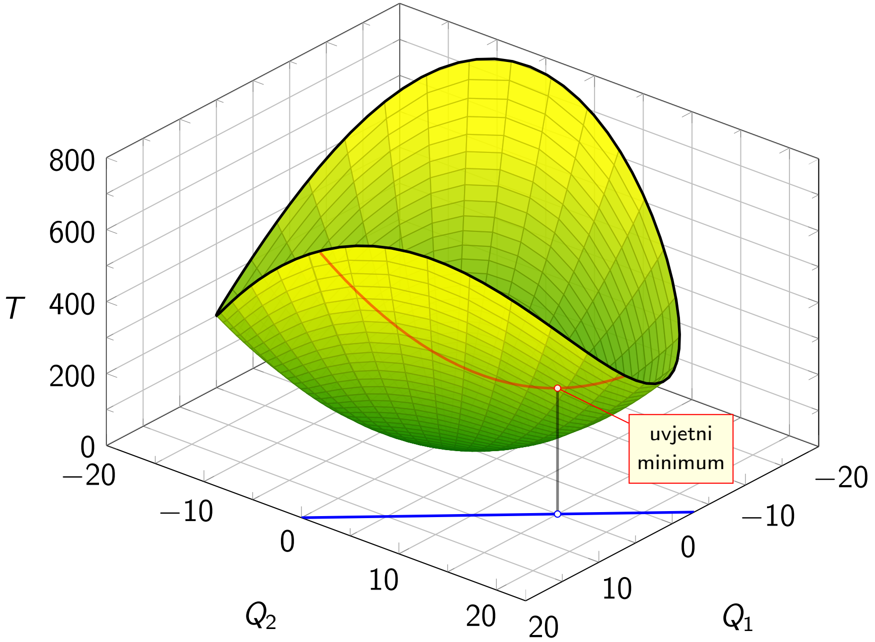
$f''(5) = 4 > 0 \longrightarrow$ minimum

$Q_2 = 20 - 5 \qquad \boxed{Q_2 = 15}$

Stacionarna točka: $(5, 15)$

$$T(\overset{Q_1}{5}, \overset{Q_2}{15}) = 2 \cdot 5^2 + 5 \cdot 15 + 15^2 = 350$$

Minimalni troškovi za 20 proizvoda iznose 350 novčanih jedinica, a postižu se za $Q_1 = 5$ i $Q_2 = 15$.


800
600
400
200
0
T
−20
−10
0
10
20
Q_2
−20
−10
0
10
20
Q_1
uvjetni
minimum

treći zadatak

Zadatak 3

Zadana je funkcija ponude dobra D_1

$$s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2$$

u ovisnosti o cijenama p_1 *i* p_2 *dobara* D_1 *i* D_2.

a) *Za koliko se približno promijeni ponuda* s_1 *kada se cijena* p_1 *na nivou* $p_1 = 1$, $p_2 = 2$ *poveća za* 0.02?

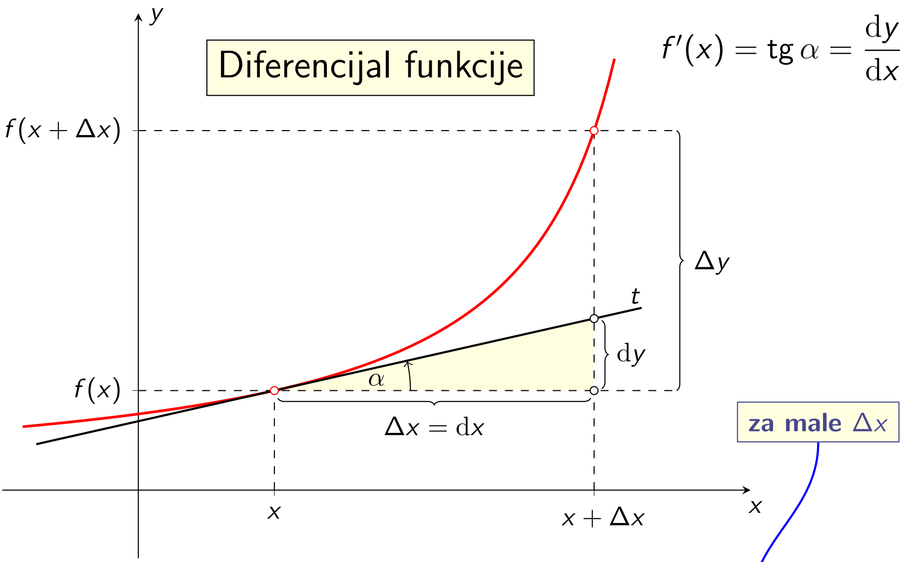
b) *Za koliko se približno promijeni ponuda* s_1 *kada se cijena* p_2 *na nivou* $p_1 = 1$, $p_2 = 2$ *smanji za* 0.01?

c) *Za koliko se približno promijeni ponuda* s_1 *kada istovremeno napravimo promjene iz a) i b) dijela zadatka?*

U svakom slučaju također izračunajte stvarne promjene ponude s_1 *i usporedite ih s približnim promjenama koje su aproksimirane pomoću diferencijala.*

$$y = f(x)$$

$$f'(x) = \operatorname{tg}\alpha = \frac{\mathrm{d}y}{\mathrm{d}x}$$



$$\Delta y = f(x+\Delta x) - f(x), \qquad \mathrm{d}y = f'(x)\,\mathrm{d}x, \qquad \Delta y \approx \mathrm{d}y$$

$$s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2$$

Rješenje $p_1 = 1,\; p_2 = 2,$

a) Stvarna promjena ponude:

$$\Delta s_1 =$$

Rješenje

$p_1 = 1,\ p_2 = 2,$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 =$$

Rješenje $p_1 = 1,\ p_2 = 2,$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = \qquad\qquad -$$

$$s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2$$

Rješenje

$p_1 = 1,\ p_2 = 2,$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = \qquad\qquad - s_1(1, 2)$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = \qquad\qquad - s_1(1, 2)$$

Rješenje

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2)$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

Rješenje

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995$$

Rješenje

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 -$$

Rješenje

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1$$

$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$

$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$

$$s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1$$

$$\frac{\partial s_1}{\partial p_1} =$$

$$y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x$$

$\Delta y \approx \mathrm{d}y$, za male pomake $\mathrm{d}x$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y, \text{ za male pomake } \mathrm{d}x}$$

Rješenje

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda – stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot \frac{1}{2\sqrt{p_1}}$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda – stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot \frac{1}{2\sqrt{p_1}} = \frac{5}{\sqrt{p_1}}$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_1 =$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot \frac{1}{2\sqrt{p_1}} = \frac{5}{\sqrt{p_1}}$$

$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$ $\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_1 = \frac{5}{\sqrt{1}}$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot \frac{1}{2\sqrt{p_1}} = \frac{5}{\sqrt{p_1}}$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_1 = \frac{5}{\sqrt{1}} \cdot 0.02$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot \frac{1}{2\sqrt{p_1}} = \frac{5}{\sqrt{p_1}}$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_1 = \frac{5}{\sqrt{1}} \cdot 0.02 = 0.1$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot \frac{1}{2\sqrt{p_1}} = \frac{5}{\sqrt{p_1}}$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

Rješenje $p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

a) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 2) - s_1(1, 2) \approx 2.0995 - 2 = 0.0995$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_1 = \frac{5}{\sqrt{1}} \cdot 0.02 = 0.1$$

$$\frac{\partial s_1}{\partial p_1} = 10 \cdot \frac{1}{2\sqrt{p_1}} = \frac{5}{\sqrt{p_1}}$$

Ponuda dobra D_1 se poveća približno za 0.1.

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1, \; p_2 = 2,$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude:

$$\Delta s_1 =$$

$$p_1 = 1,\ p_2 = 2,$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 =$$

$$p_1 = 1,\ p_2 = 2,$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = \qquad\qquad - $$

$p_1 = 1,\ p_2 = 2,$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda – stara ponuda

$$\Delta s_1 = \qquad\qquad - s_1(1, 2)$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = \qquad\qquad - s_1(1, 2)$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2)$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) =$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 -$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01 \qquad \boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\frac{\partial s_1}{\partial p_2} =$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\frac{\partial s_1}{\partial p_2} = 0 -$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\frac{\partial s_1}{\partial p_2} = 0 - 4p_2$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\frac{\partial s_1}{\partial p_2} = 0 - 4p_2 = -4p_2$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_2 =$$

$$\frac{\partial s_1}{\partial p_2} = 0 - 4p_2 = -4p_2$$

$\boxed{y = y(x), \quad \mathrm{d}y = y' \mathrm{d}x}$ $\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01 \qquad \boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_2 = -4 \cdot 2$$

$$\frac{\partial s_1}{\partial p_2} = 0 - 4p_2 = -4p_2$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_2 = -4 \cdot 2 \cdot (-0.01)$$

$$\frac{\partial s_1}{\partial p_2} = 0 - 4p_2 = -4p_2$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x}$$

$$\boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01 \qquad \boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_2 = -4 \cdot 2 \cdot (-0.01) = 0.08$$

$$\frac{\partial s_1}{\partial p_2} = 0 - 4p_2 = -4p_2$$

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_2 = -0.01$$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

b) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1, 1.99) - s_1(1, 2) = 2.0798 - 2 = 0.0798$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) \cdot \mathrm{d}p_2 = -4 \cdot 2 \cdot (-0.01) = 0.08$$

$$\frac{\partial s_1}{\partial p_2} = 0 - 4p_2 = -4p_2$$

Ponuda dobra D_1 se poveća približno za 0.08.

$$\boxed{y = y(x), \quad \mathrm{d}y = y'\mathrm{d}x} \qquad \boxed{\Delta y \approx \mathrm{d}y,\ \text{za male pomake } \mathrm{d}x}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude:

$$\Delta s_1 =$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 =$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda – stara ponuda

$$\Delta s_1 = \qquad\qquad\qquad - $$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = \qquad\qquad\qquad - s_1(1, 2)$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2)$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda – stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 -$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y}$ $\boxed{\Delta z \approx \mathrm{d}z}$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y}$ $\boxed{\Delta z \approx \mathrm{d}z}$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$

$$\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02 +$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1,2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1,2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02 + (-8)$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02 + (-8) \cdot$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02 + (-8) \cdot (-0.01)$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y}$ $\boxed{\Delta z \approx \mathrm{d}z}$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02 + (-8) \cdot (-0.01) = 0.1 + 0.08$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y} \quad \boxed{\Delta z \approx \mathrm{d}z}$$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1,2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1,2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02 + (-8) \cdot (-0.01) = 0.1 + 0.08 = 0.18$$

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y}$ $\boxed{\Delta z \approx \mathrm{d}z}$

$p_1 = 1,\ p_2 = 2,\ \mathrm{d}p_1 = 0.02,\ \mathrm{d}p_2 = -0.01$ $\boxed{s_1(p_1, p_2) = 10\sqrt{p_1} - 2p_2^2}$

c) Stvarna promjena ponude: nova ponuda − stara ponuda

$$\Delta s_1 = s_1(1.02, 1.99) - s_1(1, 2) \approx 2.1793 - 2 = 0.1793$$

Približna promjena ponude

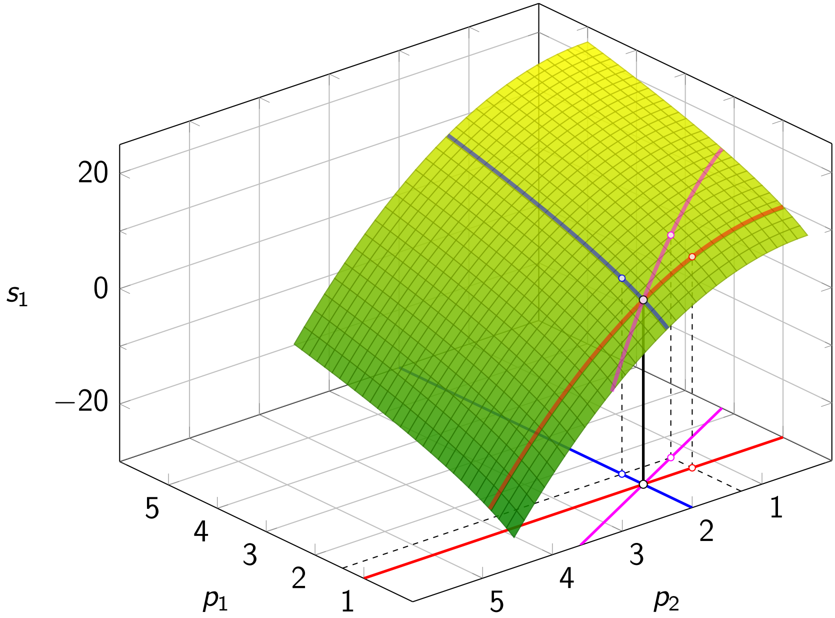
$$\Delta s_1 \approx \frac{\partial s_1}{\partial p_1}(1, 2) \cdot \mathrm{d}p_1 + \frac{\partial s_1}{\partial p_2}(1, 2) \cdot \mathrm{d}p_2$$

$$\Delta s_1 \approx 5 \cdot 0.02 + (-8) \cdot (-0.01) = 0.1 + 0.08 = 0.18$$

Ponuda dobra D_1 se poveća približno za 0.18.

$$\boxed{\Delta z = z(x + \Delta x, y + \Delta y) - z(x, y)}$$

$\boxed{z = z(x, y), \quad \mathrm{d}z = z_x \mathrm{d}x + z_y \mathrm{d}y}$ $\boxed{\Delta z \approx \mathrm{d}z}$


20
0
−20
s_1
5
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3
2
1
p_1
5
4
3
2
1
p_2

četvrti zadatak

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x, y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x =$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x = \frac{1}{2\sqrt{x - y^2}}$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y)=\sqrt{x-y^2}$$

na nivou $x=25$, $y=3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x=\frac{1}{2\sqrt{x-y^2}}\cdot$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x = \frac{1}{2\sqrt{x - y^2}} \cdot 1$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x, y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x = \frac{1}{2\sqrt{x - y^2}} \cdot 1 = \frac{1}{2\sqrt{x - y^2}}$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x = \frac{1}{2\sqrt{x - y^2}} \cdot 1 = \frac{1}{2\sqrt{x - y^2}}$$

$$f_y =$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y)=\sqrt{x-y^2}$$

na nivou $x=25$, $y=3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x=\frac{1}{2\sqrt{x-y^2}}\cdot 1=\frac{1}{2\sqrt{x-y^2}}$$

$$f_y=\frac{1}{2\sqrt{x-y^2}}$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x = \frac{1}{2\sqrt{x - y^2}} \cdot 1 = \frac{1}{2\sqrt{x - y^2}}$$

$$f_y = \frac{1}{2\sqrt{x - y^2}} \cdot$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x,y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x = \frac{1}{2\sqrt{x - y^2}} \cdot 1 = \frac{1}{2\sqrt{x - y^2}}$$

$$f_y = \frac{1}{2\sqrt{x - y^2}} \cdot (-2y)$$

Zadatak 4

Izračunajte koeficijente parcijalnih elastičnosti funkcije

$$f(x, y) = \sqrt{x - y^2}$$

na nivou $x = 25$, $y = 3$ *i interpretirajte dobivene rezultate.*

Rješenje

$$f_x = \frac{1}{2\sqrt{x - y^2}} \cdot 1 = \frac{1}{2\sqrt{x - y^2}}$$

$$f_y = \frac{1}{2\sqrt{x - y^2}} \cdot (-2y) = \frac{-y}{\sqrt{x - y^2}}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(25,3) =$$

$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$

$\boxed{f(x, y) = \sqrt{x - y^2}}$

$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \underline{\qquad\qquad}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3)$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x, y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25, 3)} \cdot f_x(25, 3) =$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(25,3) =$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2}$$

$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$ $\boxed{f(x,y) = \sqrt{x - y^2}}$ $\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(25,3) =$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) = \frac{25}{}$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) = \frac{25}{4}$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) = \frac{25}{4} \cdot$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) = \frac{25}{4} \cdot \frac{1}{8}$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) = \frac{25}{4} \cdot \frac{1}{8} = \frac{25}{32}$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) = \frac{25}{4} \cdot \frac{1}{8} = \frac{25}{32} = 0.78125$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

$$\boxed{E_{f,x} = \frac{x}{f} \cdot f_x} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_x = \frac{1}{2\sqrt{x - y^2}}}$$

$$E_{f,x}(\overset{x}{25}, \overset{y}{3}) = \frac{25}{f(25,3)} \cdot f_x(25,3) = \frac{25}{4} \cdot \frac{1}{8} = \frac{25}{32} = 0.78125$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_x(\overset{x}{25}, \overset{y}{3}) = \frac{1}{2\sqrt{25 - 3^2}} = \frac{1}{2\sqrt{16}} = \frac{1}{8}$$

Ako na nivou $(25, 3)$ varijablu x povećamo za 1%, funkcija f će se povećati za 0.78125%.

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(25,3) =$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \underline{\qquad\qquad}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3)$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(25,3) =$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(25,3) =$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) =$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) = \frac{3}{}$$

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$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) = \frac{3}{4}$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) = \frac{3}{4} \cdot$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

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$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) = \frac{3}{4} \cdot \frac{-3}{4}$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) = \frac{3}{4} \cdot \frac{-3}{4} = \frac{-9}{16}$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y}$$

$$\boxed{f(x,y) = \sqrt{x - y^2}}$$

$$\boxed{f_y = \frac{-y}{\sqrt{x - y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) = \frac{3}{4} \cdot \frac{-3}{4} = \frac{-9}{16} = -0.5625$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

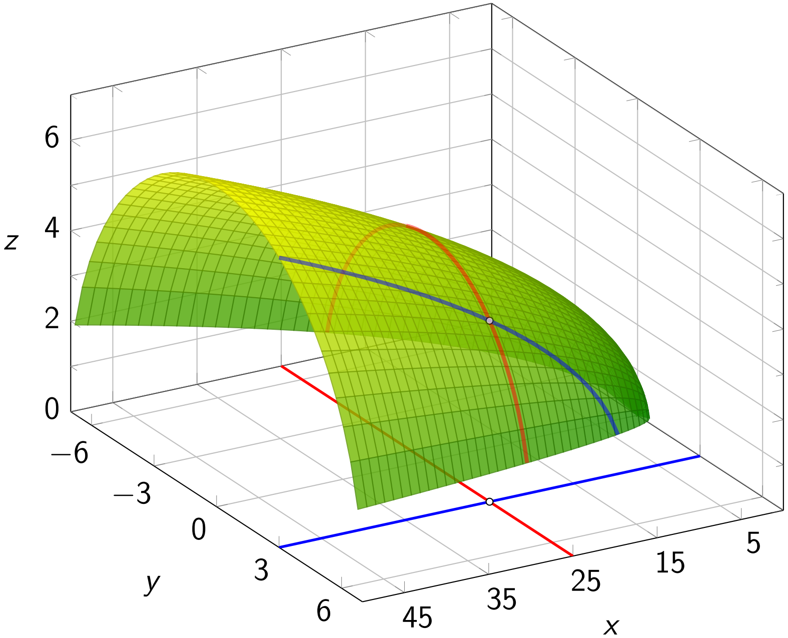
$$\boxed{E_{f,y} = \frac{y}{f} \cdot f_y} \qquad \boxed{f(x,y) = \sqrt{x - y^2}} \qquad \boxed{f_y = \frac{-y}{\sqrt{x-y^2}}}$$

$$E_{f,y}(\overset{x}{25}, \overset{y}{3}) = \frac{3}{f(25,3)} \cdot f_y(25,3) = \frac{3}{4} \cdot \frac{-3}{4} = \frac{-9}{16} = -0.5625$$

$$f(\overset{x}{25}, \overset{y}{3}) = \sqrt{25 - 3^2} = \sqrt{16} = 4$$

$$f_y(\overset{x}{25}, \overset{y}{3}) = \frac{-3}{\sqrt{25 - 3^2}} = \frac{-3}{\sqrt{16}} = \frac{-3}{4}$$

Ako na nivou $(25, 3)$ varijablu y povećamo za 1%, funkcija f će se smanjiti za 0.5625%.



z
6
4
2
0
−6
−3
0
3
6
y
45
35
25
15
5
x

Križna elastičnost

- Funkcija potražnje prvog proizvoda: $q_1 = q_1(p_1, p_2)$
  Funkcija potražnje drugog proizvoda: $q_2 = q_2(p_1, p_2)$
- Koeficijent parcijalne elastičnosti opisuje ponašanje funkcije potražnje jednog proizvoda u slučaju kada se mijenja cijena tog proizvoda: E_{q_1,p_1}, E_{q_2,p_2}
- Proizvod je normalno dobro ukoliko povećanje cijene tog proizvoda uzrokuje pad njegove potražnje. U tom slučaju koeficijent parcijalne elastičnosti je negativni broj.
- Proizvod nije normalno dobro ukoliko povećanje cijene tog proizvoda uzrokuje rast njegove potražnje. U tom slučaju koeficijent parcijalne elastičnosti je pozitivni broj.

- Funkcija potražnje prvog proizvoda: $q_1 = q_1(p_1, p_2)$
  Funkcija potražnje drugog proizvoda: $q_2 = q_2(p_1, p_2)$
- Koeficijent križne elastičnosti opisuje ponašanje funkcije potražnje jednog proizvoda u slučaju kada se mijenja cijena drugog proizvoda: E_{q_1,p_2}, E_{q_2,p_1}
- Proizvodi su supstituti ukoliko rast cijene jednog od njih uzrokuje rast potražnje za drugim. U tom slučaju koeficijent križne elastičnosti je pozitivni broj.
- Proizvodi su komplementi ukoliko rast cijene jednog od njih uzrokuje pad potražnje za drugim. U tom slučaju koeficijent križne elastičnosti je negativni broj.

peti zadatak

Zadatak 5

Dana je funkcija potražnje proizvoda D_1

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i křižne elastičnosti na nivou cijena* $p_1 = 1$, $p_2 = 2$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_1 *normalno dobro?*

Zadatak 5

$$\boxed{q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}}$$

Dana je funkcija potražnje proizvoda D_1

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

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Rješenje

$$\frac{\partial q_1}{\partial p_1} =$$

Zadatak 5

$$q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}$$

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Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2}\,.$$

Zadatak 5

$$\boxed{q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}}$$

Dana je funkcija potražnje proizvoda D_1

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 i p_2 proizvoda D_1 i D_2. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena $p_1 = 1$, $p_2 = 2$. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod D_1 normalno dobro?

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1$$

Zadatak 5

Dana je funkcija potražnje proizvoda D_1

$$\boxed{q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}}$$

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 1$, $p_2 = 2$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_1 *normalno dobro?*

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1 + 0$$

Zadatak 5

$$\boxed{q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}}$$

Dana je funkcija potražnje proizvoda D_1

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 1$*,* $p_2 = 2$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_1 *normalno dobro?*

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1 + 0 = p_1$$

Zadatak 5

Dana je funkcija potražnje proizvoda D_1

$$\boxed{q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}}$$

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 i p_2 proizvoda D_1 i D_2. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena $p_1 = 1$, $p_2 = 2$. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod D_1 normalno dobro?

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1 + 0 = p_1$$

$$\frac{\partial q_1}{\partial p_2} =$$

Zadatak 5

$$q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}$$

Dana je funkcija potražnje proizvoda D_1

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 i p_2 proizvoda D_1 i D_2. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena $p_1 = 1$, $p_2 = 2$. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod D_1 normalno dobro?

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1 + 0 = p_1$$

$$\frac{\partial q_1}{\partial p_2} = 0$$

Zadatak 5

Dana je funkcija potražnje proizvoda D_1

$$\boxed{q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}}$$

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 1$, $p_2 = 2$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_1 *normalno dobro?*

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1 + 0 = p_1$$

$$\frac{\partial q_1}{\partial p_2} = 0 + 6 \cdot$$

Zadatak 5

$$q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}$$

Dana je funkcija potražnje proizvoda D_1

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 i p_2 proizvoda D_1 i D_2. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena $p_1 = 1$, $p_2 = 2$. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod D_1 normalno dobro?

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1 + 0 = p_1$$

$$\frac{\partial q_1}{\partial p_2} = 0 + 6 \cdot (-p_2^{-2})$$

Zadatak 5

$$q_1 = \frac{1}{2}p_1^2 + 6p_2^{-1}$$

Dana je funkcija potražnje proizvoda D_1

$$q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}$$

u ovisnosti o cijenama p_1 i p_2 proizvoda D_1 i D_2. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena $p_1 = 1$, $p_2 = 2$. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod D_1 normalno dobro?

Rješenje

$$\frac{\partial q_1}{\partial p_1} = \frac{1}{2} \cdot 2p_1 + 0 = p_1$$

$$\frac{\partial q_1}{\partial p_2} = 0 + 6 \cdot (-p_2^{-2}) = \frac{-6}{p_2^2}$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(1,2) =$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \underline{\hspace{3cm}}$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{\quad\quad}$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)}$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

$$\boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

$$\boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2)$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) =$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) =$$

$$q_1(1,2) =$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) =$$

$$q_1(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2}$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) =$$

$$q_1(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2}$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) =$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) =$$

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$$\frac{\partial q_1}{\partial p_1}(1,2) =$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

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$$\frac{\partial q_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = 1$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{}$$

$$q_1(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

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- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{3.5}$$

$$q_1(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_1}(\overset{p_1}{1},\overset{p_2}{2}) = 1$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

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- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{3.5} \cdot$$

$$q_1(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

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- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{3.5} \cdot 1$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = 1$$

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- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{3.5} \cdot 1 = \frac{2}{7}$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = 1$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{3.5} \cdot 1 = \frac{2}{7} \approx 0.29$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = 1$$

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

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- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{3.5} \cdot 1 = \frac{2}{7} \approx 0.29$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = 1$$

Ako na nivou cijena $p_1 = 1$, $p_2 = 2$ cijenu p_1 proizvoda D_1 povećamo za 1%, potražnja za proizvodom D_1 se poveća za 0.29%.

$$\boxed{E_{q_1,p_1} = \frac{p_1}{q_1} \cdot \frac{\partial q_1}{\partial p_1}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \quad \boxed{\frac{\partial q_1}{\partial p_1} = p_1}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_1,p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_1}(1,2) = \frac{1}{3.5} \cdot 1 = \frac{2}{7} \approx 0.29$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_1}(\overset{p_1}{1}, \overset{p_2}{2}) = 1$$

Ako na nivou cijena $p_1 = 1$, $p_2 = 2$ cijenu p_1 proizvoda D_1 povećamo za 1%, potražnja za proizvodom D_1 se poveća za 0.29%.

Proizvod D_1 nije normalno dobro.

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(1,2) =$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \underline{\qquad\qquad}$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{}$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)}$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2)$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

$$\boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

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- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(1,2) =$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

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- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2}$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

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- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2}$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

$$\boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

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- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(1,2) =$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1,p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(\overset{p_1}{1},\overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1},\overset{p_2}{2}) = \frac{-6}{2^2}$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2}$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) =$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

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- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{}$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

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- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{3.5}$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

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- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{3.5} \cdot$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{3.5} \cdot (-1.5)$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{3.5} \cdot (-1.5) = -\frac{6}{7}$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}}$$

$$\boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}}$$

$$\boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{3.5} \cdot (-1.5) = -\frac{6}{7} \approx -0.86$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{3.5} \cdot (-1.5) = -\frac{6}{7} \approx -0.86$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

Ako na nivou cijena $p_1 = 1$, $p_2 = 2$ cijenu p_2 proizvoda D_2 povećamo za 1%, potražnja za proizvodom D_1 se smanji za 0.86%.

$$\boxed{E_{q_1,p_2} = \frac{p_2}{q_1} \cdot \frac{\partial q_1}{\partial p_2}} \qquad \boxed{q_1(p_1, p_2) = \frac{1}{2}p_1^2 + \frac{6}{p_2}} \qquad \boxed{\frac{\partial q_1}{\partial p_2} = \frac{-6}{p_2^2}}$$

- Koeficijent križne elastičnosti

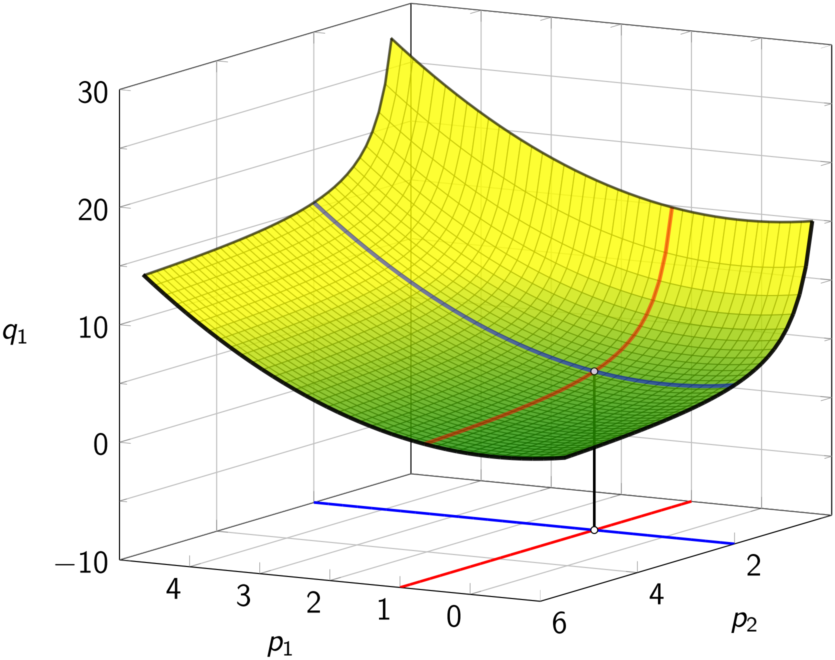
$$E_{q_1,p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{2}{q_1(1,2)} \cdot \frac{\partial q_1}{\partial p_2}(1,2) = \frac{2}{3.5} \cdot (-1.5) = -\frac{6}{7} \approx -0.86$$

$$q_1(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{1}{2} \cdot 1^2 + \frac{6}{2} = \frac{7}{2} = 3.5$$

$$\frac{\partial q_1}{\partial p_2}(\overset{p_1}{1}, \overset{p_2}{2}) = \frac{-6}{2^2} = -\frac{3}{2} = -1.5$$

Ako na nivou cijena $p_1 = 1$, $p_2 = 2$ cijenu p_2 proizvoda D_2 povećamo za 1%, potražnja za proizvodom D_1 se smanji za 0.86%.

Proizvodi D_1 i D_2 su komplementi.


30
20
10
0
−10
q_1
4
3
2
1
0
p_1
0
2
4
6
p_2

šesti zadatak

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2. *Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$, $p_2 = 1$. *Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2. *Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$, $p_2 = 1$. *Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} =$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2. *Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$, $p_2 = 1$. *Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}\,.$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2. *Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$, $p_2 = 1$. *Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2} \cdot 1$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$*,* $p_2 = 1$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2} \cdot 1 = 2\sqrt{10 - p_2}$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$*,* $p_2 = 1$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2} \cdot 1 = 2\sqrt{10 - p_2}$$

$$\frac{\partial q_2}{\partial p_2} =$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$, $p_2 = 1$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2} \cdot 1 = 2\sqrt{10 - p_2}$$

$$\frac{\partial q_2}{\partial p_2} = 2p_1 \cdot$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2. *Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$, $p_2 = 1$. *Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2} \cdot 1 = 2\sqrt{10 - p_2}$$

$$\frac{\partial q_2}{\partial p_2} = 2p_1 \cdot \frac{1}{2\sqrt{10 - p_2}}$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$, $p_2 = 1$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2} \cdot 1 = 2\sqrt{10 - p_2}$$

$$\frac{\partial q_2}{\partial p_2} = 2p_1 \cdot \frac{1}{2\sqrt{10 - p_2}} \cdot (-1)$$

Zadatak 6

Dana je funkcija potražnje proizvoda D_2

$$q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}$$

u ovisnosti o cijenama p_1 *i* p_2 *proizvoda* D_1 *i* D_2*. Izračunajte i interpretirajte koeficijente parcijalne i križne elastičnosti na nivou cijena* $p_1 = 5$*,* $p_2 = 1$*. Jesu li ti proizvodi komplementi ili supstituti? Je li proizvod* D_2 *normalno dobro?*

Rješenje

$$\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2} \cdot 1 = 2\sqrt{10 - p_2}$$

$$\frac{\partial q_2}{\partial p_2} = 2p_1 \cdot \frac{1}{2\sqrt{10 - p_2}} \cdot (-1) = \frac{-p_1}{\sqrt{10 - p_2}}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}}$$

$$\boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}}$$

$$\boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(5, 1) =$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \rule{2cm}{0.4pt}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{\qquad}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5, 1)}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1)$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) =$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}}$$

$$\boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}}$$

$$\boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) =$$

$$q_2(5,1) =$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1,p_2) = 2p_1\sqrt{10-p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10-p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5},\overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) =$$

$$q_2(\overset{p_1}{5},\overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10-1}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) =$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}}$$

$$\boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}}$$

$$\boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) =$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(5,1) =$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) =$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) =$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}} = \frac{-5}{3}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{}$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}} = \frac{-5}{3}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{30}$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}} = \frac{-5}{3}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{30} \cdot$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}} = \frac{-5}{3}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1,p_2) = 2p_1\sqrt{10-p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10-p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5},\overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{30} \cdot \frac{-5}{3}$$

$$q_2(\overset{p_1}{5},\overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10-1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5},\overset{p_2}{1}) = \frac{-5}{\sqrt{10-1}} = \frac{-5}{3}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{30} \cdot \frac{-5}{3} = \frac{-1}{18}$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}} = \frac{-5}{3}$$

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{30} \cdot \frac{-5}{3} = \frac{-1}{18} \approx -0.06$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}} = \frac{-5}{3}$$

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- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{30} \cdot \frac{-5}{3} = \frac{-1}{18} \approx -0.06$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{-5}{\sqrt{10 - 1}} = \frac{-5}{3}$$

Ako na nivou cijena $p_1 = 5$, $p_2 = 1$ cijenu p_2 proizvoda D_2 povećamo za 1%, potražnja za proizvodom D_2 se smanji za 0.06%.

$$\boxed{E_{q_2,p_2} = \frac{p_2}{q_2} \cdot \frac{\partial q_2}{\partial p_2}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_2} = \frac{-p_1}{\sqrt{10 - p_2}}}$$

- Koeficijent parcijalne elastičnosti

$$E_{q_2,p_2}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{1}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_2}(5,1) = \frac{1}{30} \cdot \frac{-5}{3} = \frac{-1}{18} \approx -0.06$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

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Ako na nivou cijena $p_1 = 5$, $p_2 = 1$ cijenu p_2 proizvoda D_2 povećamo za 1%, potražnja za proizvodom D_2 se smanji za 0.06%.

Proizvod D_2 je normalno dobro.

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1,p_2) = 2p_1\sqrt{10-p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10-p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(5,1) =$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}}$$

$$\boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}}$$

$$\boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \text{———}$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{}$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)}$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1,p_2) = 2p_1\sqrt{10-p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10-p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5},\overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1)$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) =$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) =$$

$$q_2(5,1) =$$

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- Koeficijent križne elastičnosti

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- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) =$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}}$$

$$\boxed{q_2(p_1,p_2) = 2p_1\sqrt{10-p_2}}$$

$$\boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10-p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5},\overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) =$$

$$q_2(\overset{p_1}{5},\overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10-1} = 30$$

$$\frac{\partial q_2}{\partial p_1}(5,1) =$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

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$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) =$$

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$$\frac{\partial q_2}{\partial p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = 2\sqrt{10 - 1} = 6$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1, p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5, 1)} \cdot \frac{\partial q_2}{\partial p_1}(5, 1) = \frac{5}{}$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

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$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) = \frac{5}{30}$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

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$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) = \frac{5}{30} \cdot$$

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$$E_{q_2,p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) = \frac{5}{30} \cdot 6 = 1$$

$$q_2(\overset{p_1}{5}, \overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10 - 1} = 30$$

$$\frac{\partial q_2}{\partial p_1}(\overset{p_1}{5}, \overset{p_2}{1}) = 2\sqrt{10 - 1} = 6$$

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1,p_2) = 2p_1\sqrt{10-p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10-p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5},\overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) = \frac{5}{30} \cdot 6 = 1$$

$$q_2(\overset{p_1}{5},\overset{p_2}{1}) = 2 \cdot 5 \cdot \sqrt{10-1} = 30$$

$$\frac{\partial q_2}{\partial p_1}(\overset{p_1}{5},\overset{p_2}{1}) = 2\sqrt{10-1} = 6$$

Ako na nivou cijena $p_1 = 5$, $p_2 = 1$ cijenu p_1 proizvoda D_1 povećamo za 1%, potražnja za proizvodom D_2 se poveća za 1%.

$$\boxed{E_{q_2,p_1} = \frac{p_1}{q_2} \cdot \frac{\partial q_2}{\partial p_1}} \qquad \boxed{q_2(p_1,p_2) = 2p_1\sqrt{10 - p_2}} \qquad \boxed{\frac{\partial q_2}{\partial p_1} = 2\sqrt{10 - p_2}}$$

- Koeficijent križne elastičnosti

$$E_{q_2,p_1}(\overset{p_1}{5},\overset{p_2}{1}) = \frac{5}{q_2(5,1)} \cdot \frac{\partial q_2}{\partial p_1}(5,1) = \frac{5}{30} \cdot 6 = 1$$

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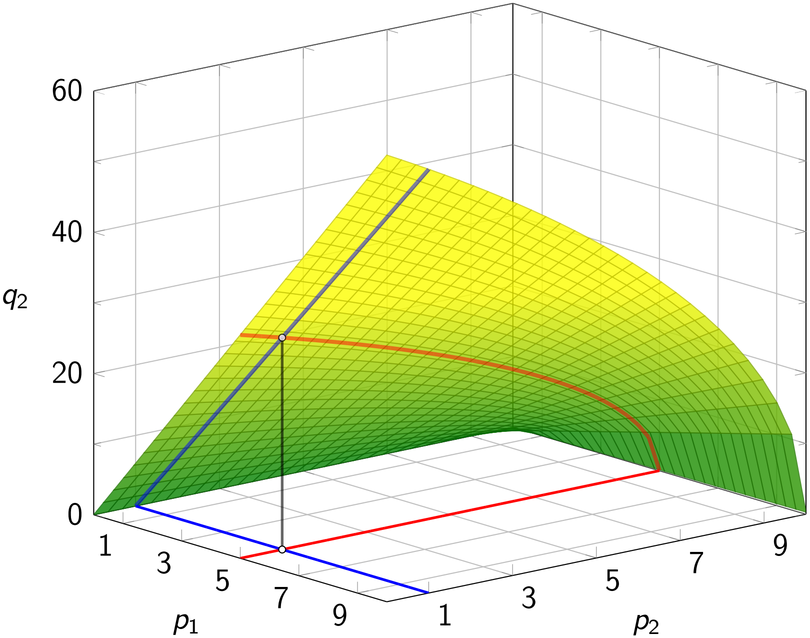
Proizvodi D_1 i D_2 su supstituti.



60
40
20
0
q_2
1
3
5
7
9
p_1
1
3
5
7
9
p_2