Derivacija funkcije – 2. dio

MATEMATIKA 2

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Sadržaj

prvi zadatak

Zadatak 1

Odredite jednadžbu normale na graf funkcije $y = \sqrt{8x^2 + 4}$ *u točki* T *na grafu s apscisom* 2. *Odredite površinu trokuta kojeg normala u točki* T *zatvara s koordinatnim osima.*

Zadatak 1

Odredite jednadžbu normale na graf funkcije $y = \sqrt{8x^2 + 4}$ u točki T na grafu s apscisom 2. Odredite površinu trokuta kojeg normala u točki T zatvara s koordinatnim osima.

Rješenje

- Jednadžba normale na graf funkcije $y = f(x)$ u točki $T(x_0, y_0)$

$$n \ldots\ y - y_0 = k_n \cdot (x - x_0)$$

Zadatak 1

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Rješenje

- Jednadžba normale na graf funkcije $y = f(x)$ u točki $T(x_0, y_0)$

$$n \ldots \; y - y_0 = k_n \cdot (x - x_0)$$

- Pritom je $\quad y_0 = f(x_0), \quad k_n = -\dfrac{1}{k_t}, \quad k_t = f'(x_0).$

- Znamo da je $x_0 = 2$.

$$\boxed{y = \sqrt{8x^2 + 4}}$$

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$$\boxed{y = \sqrt{8x^2 + 4}}$$

$$y_0 = \sqrt{8 \cdot 2^2 + 4}$$

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Točka: $T(2, 6)$

$$y = \sqrt{8x^2 + 4}$$

- Znamo da je $x_0 = 2$.

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' =$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

$$y = \sqrt{8x^2+4}$$

- Znamo da je $x_0 = 2$.

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Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2+4}}$$

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Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2 + 4}} \cdot \left(8x^2 + 4\right)'$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

$$y = \sqrt{8x^2 + 4}$$

- Znamo da je $x_0 = 2$.

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2 + 4}} \cdot \left(8x^2 + 4\right)' = \frac{1}{2\sqrt{8x^2 + 4}}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

$\boxed{y = \sqrt{8x^2 + 4}}$

- Znamo da je $x_0 = 2$.

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2+4}} \cdot \left(8x^2 + 4\right)' = \frac{1}{2\sqrt{8x^2+4}} \cdot 16x$$

$\boxed{\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'}$ $\boxed{(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}}$

$$y = \sqrt{8x^2 + 4}$$

- Znamo da je $x_0 = 2$.

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2 + 4}} \cdot \left(8x^2 + 4\right)' = \frac{1}{2\sqrt{8x^2 + 4}} \cdot 16x = \frac{8x}{\sqrt{8x^2 + 4}}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

- Znamo da je $x_0 = 2$.

$$y = \sqrt{8x^2 + 4}$$

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2+4}} \cdot \left(8x^2 + 4\right)' = \frac{1}{2\sqrt{8x^2+4}} \cdot 16x = \frac{8x}{\sqrt{8x^2+4}}$$

- Koeficijent smjera tangente

$$k_t = y'(2)$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

$$y = \sqrt{8x^2+4}$$

- Znamo da je $x_0 = 2$.

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2+4}} \cdot \left(8x^2+4\right)' = \frac{1}{2\sqrt{8x^2+4}} \cdot 16x = \frac{8x}{\sqrt{8x^2+4}}$$

- Koeficijent smjera tangente

$$k_t = y'(2) = \frac{8 \cdot 2}{\sqrt{8 \cdot 2^2 + 4}}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

$$y = \sqrt{8x^2 + 4}$$

- Znamo da je $x_0 = 2$.

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2 + 4}} \cdot \left(8x^2 + 4\right)' = \frac{1}{2\sqrt{8x^2 + 4}} \cdot 16x = \frac{8x}{\sqrt{8x^2 + 4}}$$

- Koeficijent smjera tangente

$$k_t = y'(2) = \frac{8 \cdot 2}{\sqrt{8 \cdot 2^2 + 4}} = \frac{16}{6}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

$$y = \sqrt{8x^2 + 4}$$

- Znamo da je $x_0 = 2$.

$$y_0 = \sqrt{8 \cdot 2^2 + 4} = \sqrt{36} = 6$$

Točka: $T(2, 6)$

- Derivacija funkcije

$$y' = \frac{1}{2\sqrt{8x^2+4}} \cdot \left(8x^2 + 4\right)' = \frac{1}{2\sqrt{8x^2+4}} \cdot 16x = \frac{8x}{\sqrt{8x^2+4}}$$

- Koeficijent smjera tangente

$$k_t = y'(2) = \frac{8 \cdot 2}{\sqrt{8 \cdot 2^2 + 4}} = \frac{16}{6} = \frac{8}{3}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

$$k_t = \frac{8}{3}$$

- Koeficijent smjera normale

$$k_n = -\frac{1}{k_t}$$

$$\boxed{k_t = \frac{8}{3}}$$

- Koeficijent smjera normale

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}}$$

- Koeficijent smjera normale

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}} = -\frac{3}{8}$$

$$\boxed{k_t = \frac{8}{3}}$$

- Koeficijent smjera normale

$$\boxed{k_t = \frac{8}{3}}$$

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}} = -\frac{3}{8}$$

- Jednadžba normale

$$y - y_0 = k_n \cdot (x - x_0)$$

$$\boxed{x_0 = 2}$$

$$\boxed{y_0 = 6}$$

$$\boxed{k_n = -\frac{3}{8}}$$

- Koeficijent smjera normale

$$\boxed{k_t = \frac{8}{3}}$$

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}} = -\frac{3}{8}$$

- Jednadžba normale

$$\boxed{x_0 = 2}$$

$$\boxed{y_0 = 6}$$

$$\boxed{k_n = -\frac{3}{8}}$$

$$y - y_0 = k_n \cdot (x - x_0)$$

$$y - 6 = -\frac{3}{8} \cdot (x - 2)$$

$$\boxed{k_t = \frac{8}{3}}$$

- Koeficijent smjera normale

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}} = -\frac{3}{8}$$

- Jednadžba normale

$$\boxed{x_0 = 2}$$

$$\boxed{y_0 = 6}$$

$$\boxed{k_n = -\frac{3}{8}}$$

$$y - y_0 = k_n \cdot (x - x_0)$$

$$y - 6 = -\frac{3}{8} \cdot (x - 2)$$

$$y - 6 = -\frac{3}{8}x + \frac{3}{4}$$

- Koeficijent smjera normale

$$\boxed{k_t = \frac{8}{3}}$$

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}} = -\frac{3}{8}$$

- Jednadžba normale

$$\boxed{x_0 = 2}$$

$$\boxed{y_0 = 6}$$

$$\boxed{k_n = -\frac{3}{8}}$$

$$y - y_0 = k_n \cdot (x - x_0)$$

$$y - 6 = -\frac{3}{8} \cdot (x - 2)$$

$$y - 6 = -\frac{3}{8}x + \frac{3}{4}$$

$$y = -\frac{3}{8}x + \frac{3}{4} + 6$$

$$k_t = \frac{8}{3}$$

- Koeficijent smjera normale

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}} = -\frac{3}{8}$$

- Jednadžba normale

$$x_0 = 2$$

$$y_0 = 6$$

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$$y - y_0 = k_n \cdot (x - x_0)$$

$$y - 6 = -\frac{3}{8} \cdot (x - 2)$$

$$y - 6 = -\frac{3}{8}x + \frac{3}{4}$$

$$y = -\frac{3}{8}x + \frac{3}{4} + 6$$

$$y = -\frac{3}{8}x + \frac{27}{4}$$

$$k_t = \frac{8}{3}$$

- Koeficijent smjera normale

$$k_n = -\frac{1}{k_t} = -\frac{1}{\frac{8}{3}} = -\frac{3}{8}$$

- Jednadžba normale

$$x_0 = 2$$

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$$k_n = -\frac{3}{8}$$

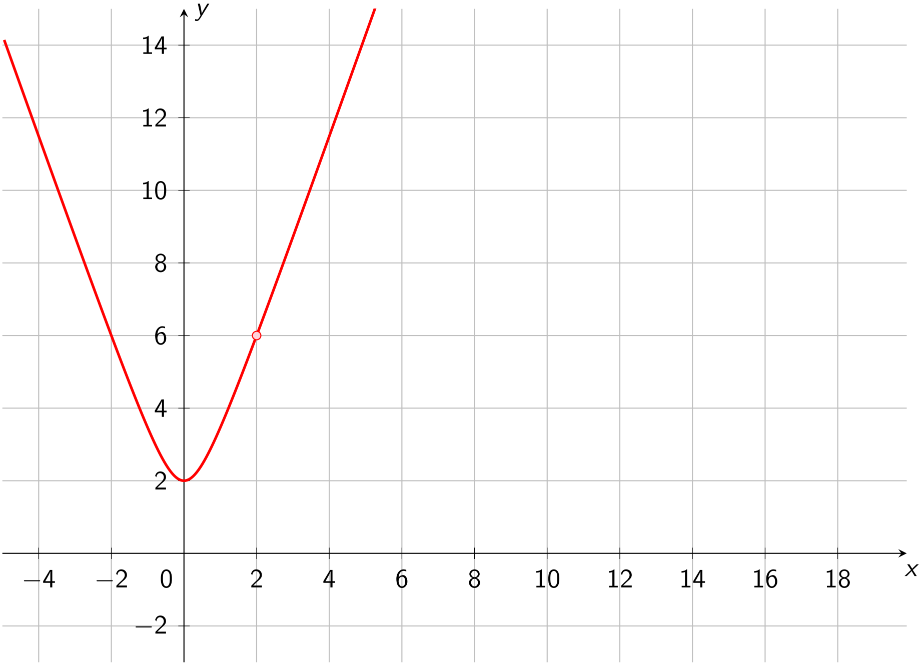
$$y - y_0 = k_n \cdot (x - x_0)$$

$$y - 6 = -\frac{3}{8} \cdot (x - 2)$$

$$y - 6 = -\frac{3}{8}x + \frac{3}{4}$$

$$y = -\frac{3}{8}x + \frac{3}{4} + 6$$

$$\boxed{y = -\frac{3}{8}x + \frac{27}{4}}$$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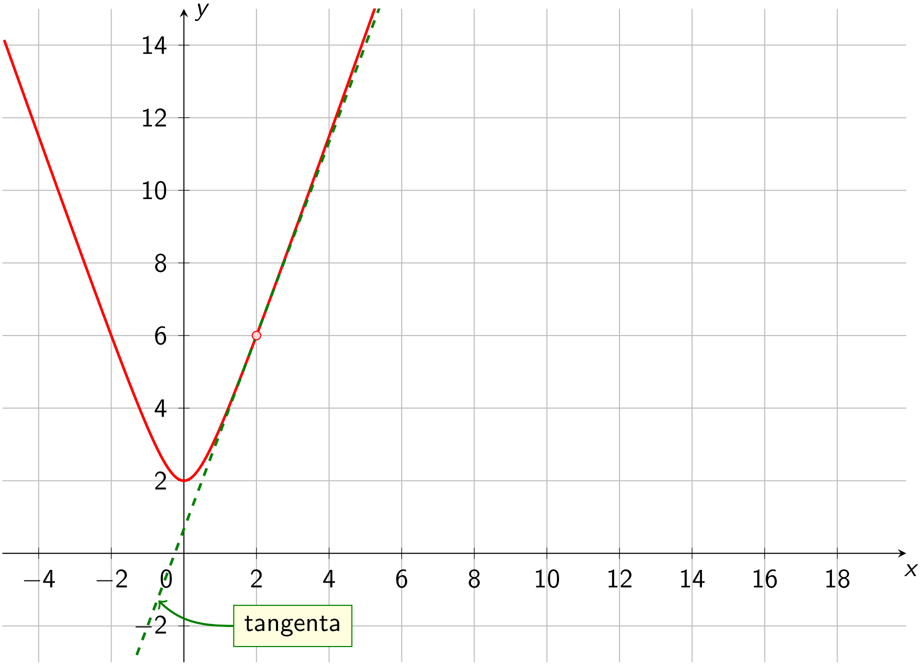
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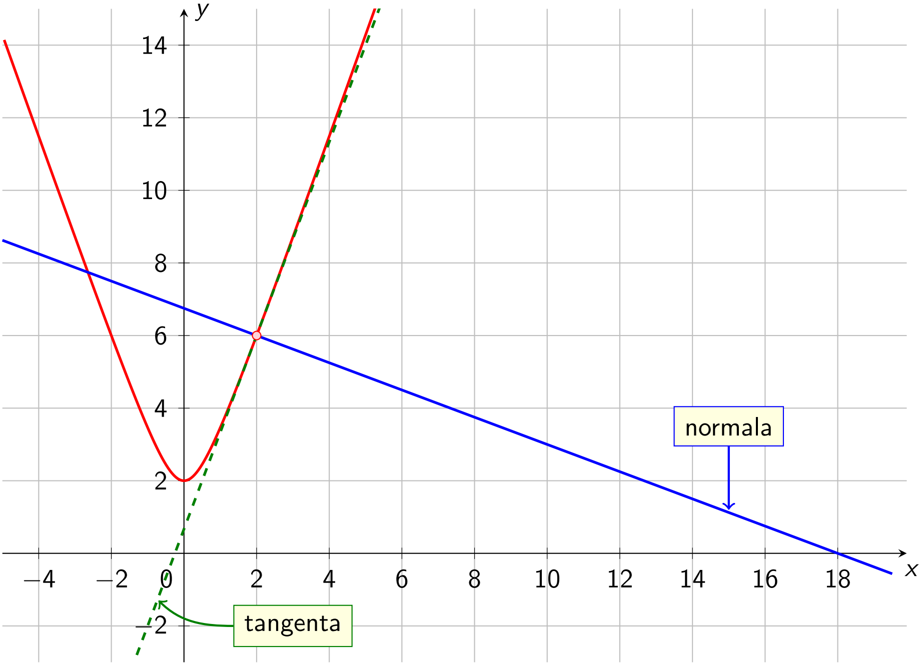
tangenta



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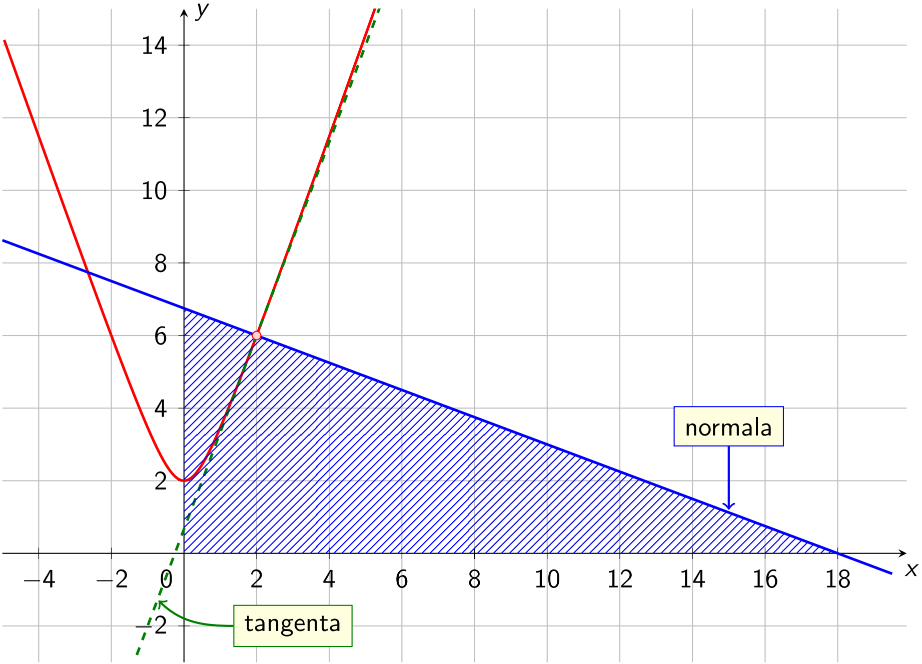

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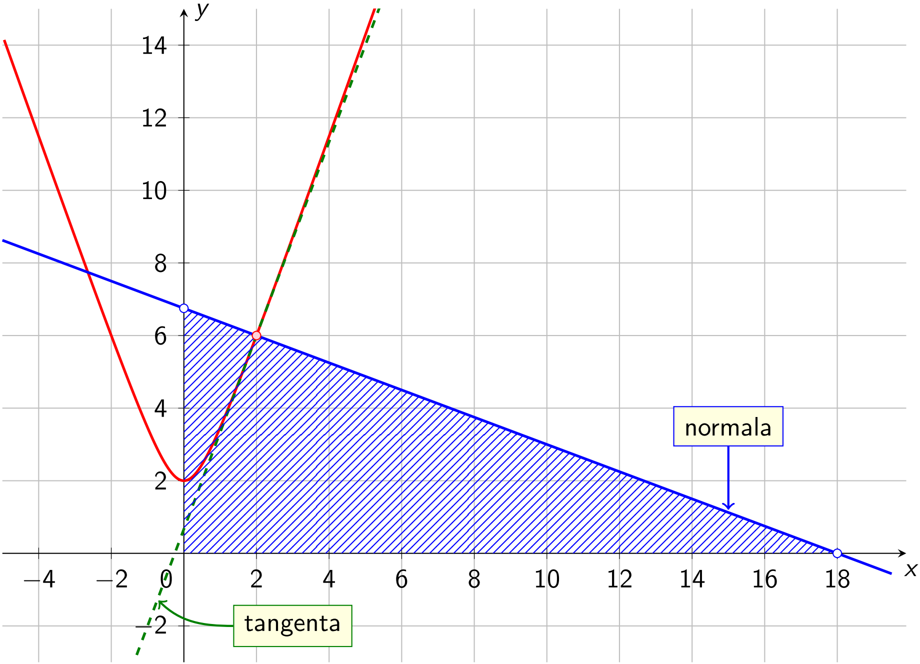
normala
tangenta



y
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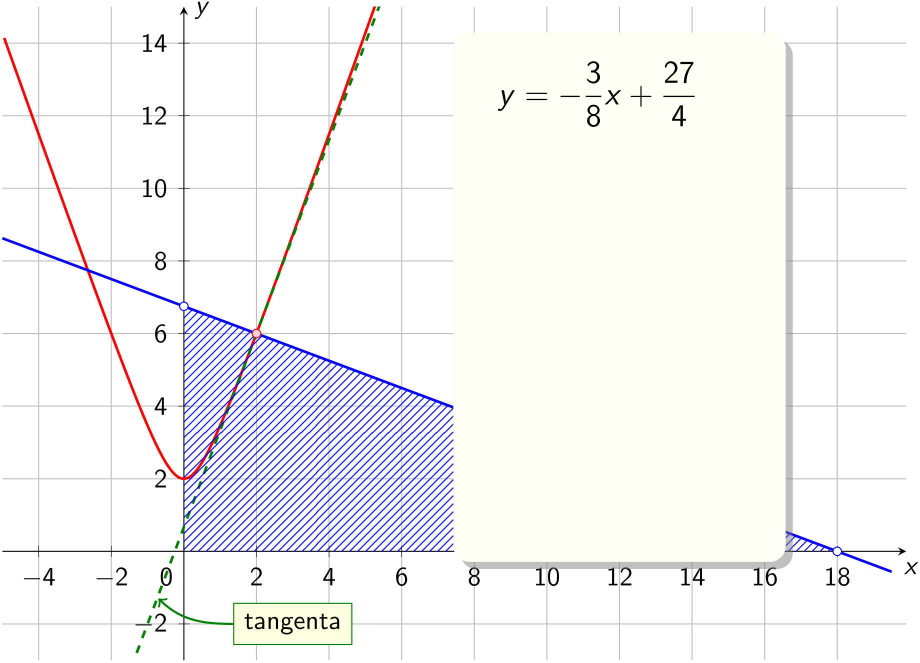
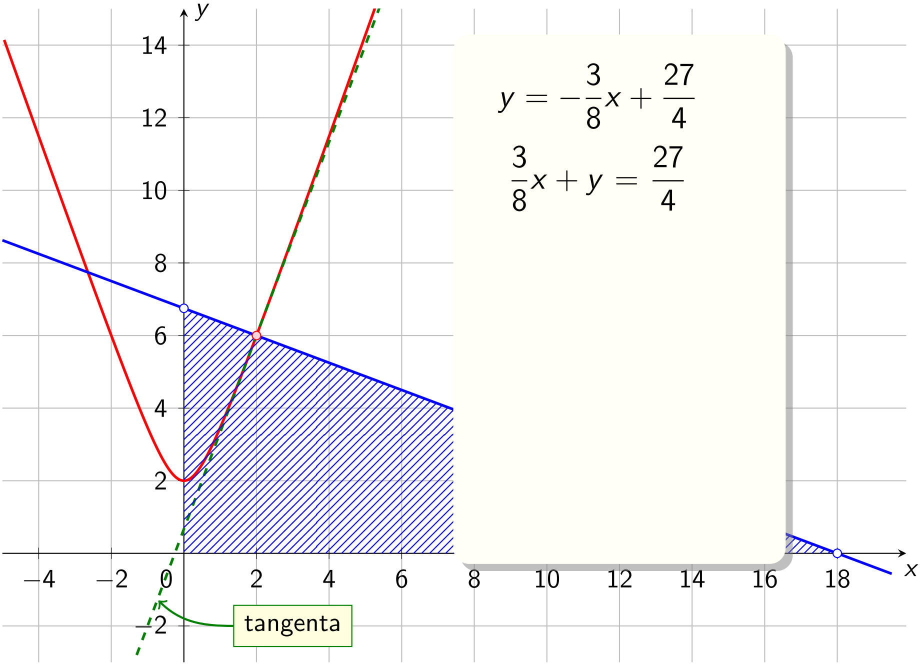
normala
tangenta

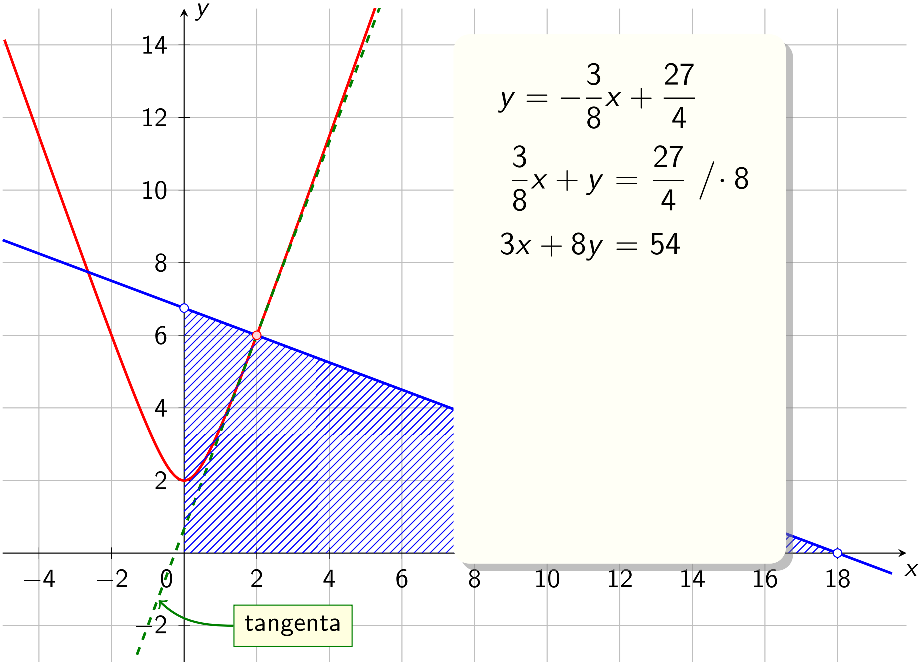


$$y = -\frac{3}{8}x + \frac{27}{4}$$



$$y = -\frac{3}{8}x + \frac{27}{4}$$

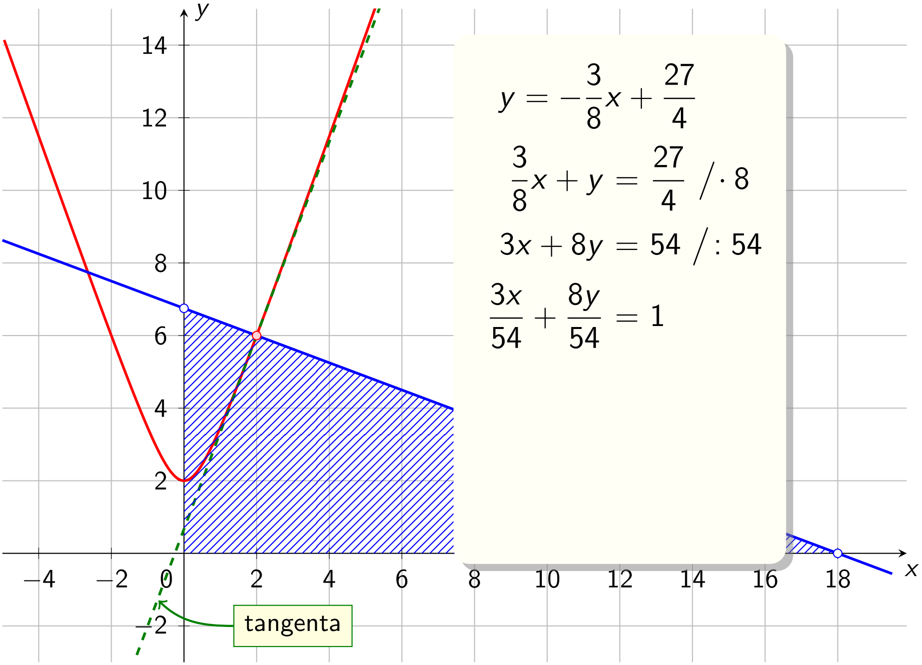
$$\frac{3}{8}x + y = \frac{27}{4}$$



$$y = -\frac{3}{8}x + \frac{27}{4}$$

$$\frac{3}{8}x + y = \frac{27}{4} \quad / \cdot 8$$

$$3x + 8y = 54$$

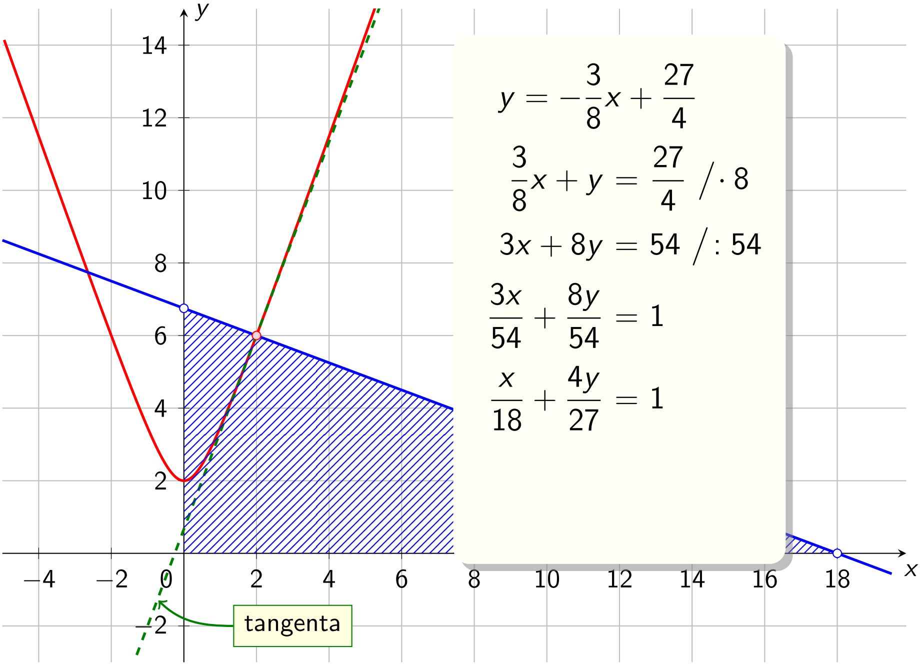


$$y = -\frac{3}{8}x + \frac{27}{4}$$

$$\frac{3}{8}x + y = \frac{27}{4} \;\Big/ \cdot 8$$

$$3x + 8y = 54 \;\Big/ : 54$$

$$\frac{3x}{54} + \frac{8y}{54} = 1$$



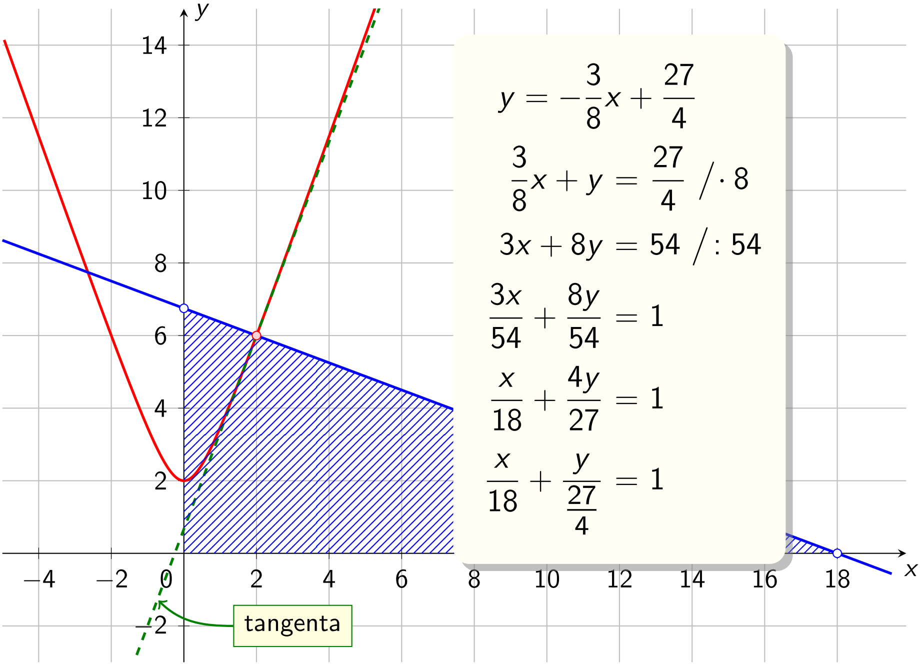
$$y = -\frac{3}{8}x + \frac{27}{4}$$

$$\frac{3}{8}x + y = \frac{27}{4} \quad \Big/ \cdot 8$$

$$3x + 8y = 54 \quad \Big/ : 54$$

$$\frac{3x}{54} + \frac{8y}{54} = 1$$

$$\frac{x}{18} + \frac{4y}{27} = 1$$



$$y = -\frac{3}{8}x + \frac{27}{4}$$

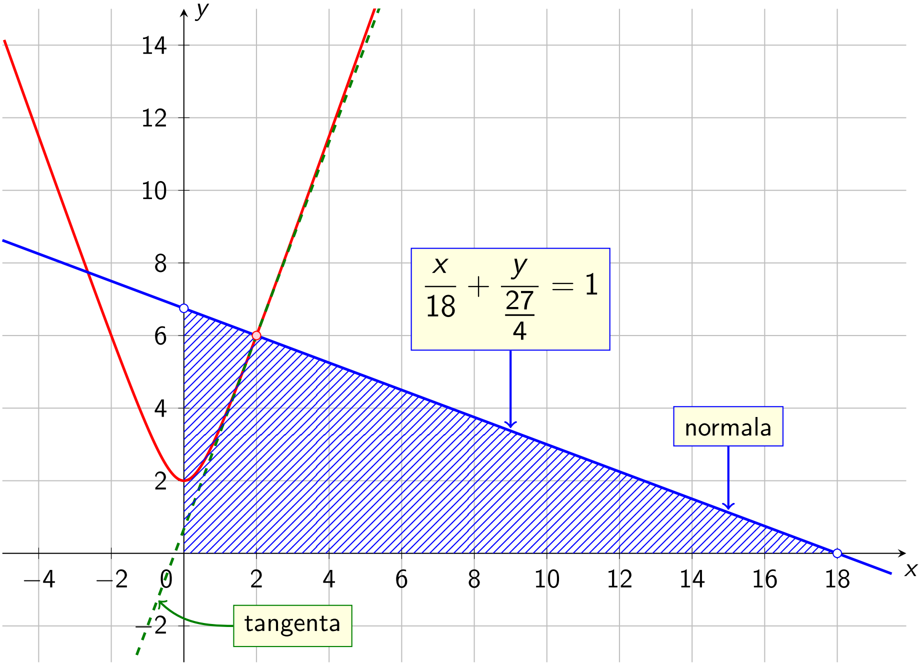
$$\frac{3}{8}x + y = \frac{27}{4} \quad \Big/ \cdot 8$$

$$3x + 8y = 54 \quad \Big/ : 54$$

$$\frac{3x}{54} + \frac{8y}{54} = 1$$

$$\frac{x}{18} + \frac{4y}{27} = 1$$

$$\frac{x}{18} + \frac{y}{\frac{27}{4}} = 1$$



y
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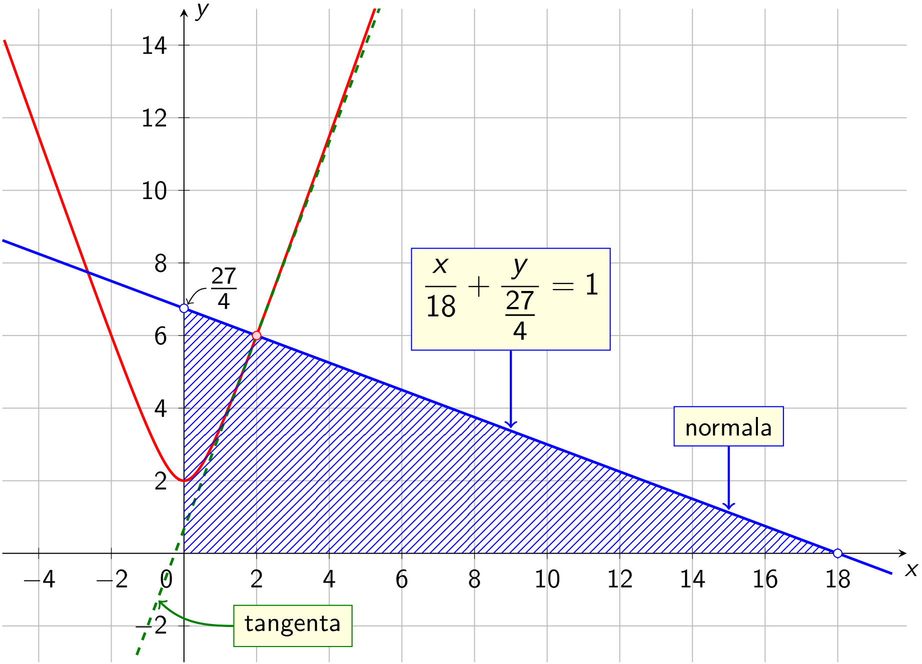
$\dfrac{x}{18} + \dfrac{y}{\frac{27}{4}} = 1$
normala
tangenta



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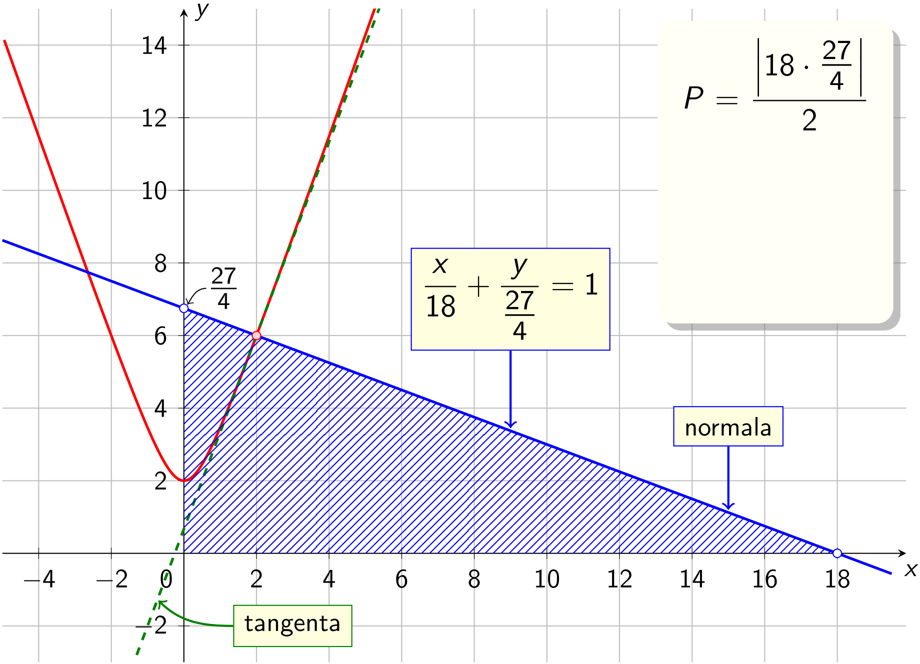
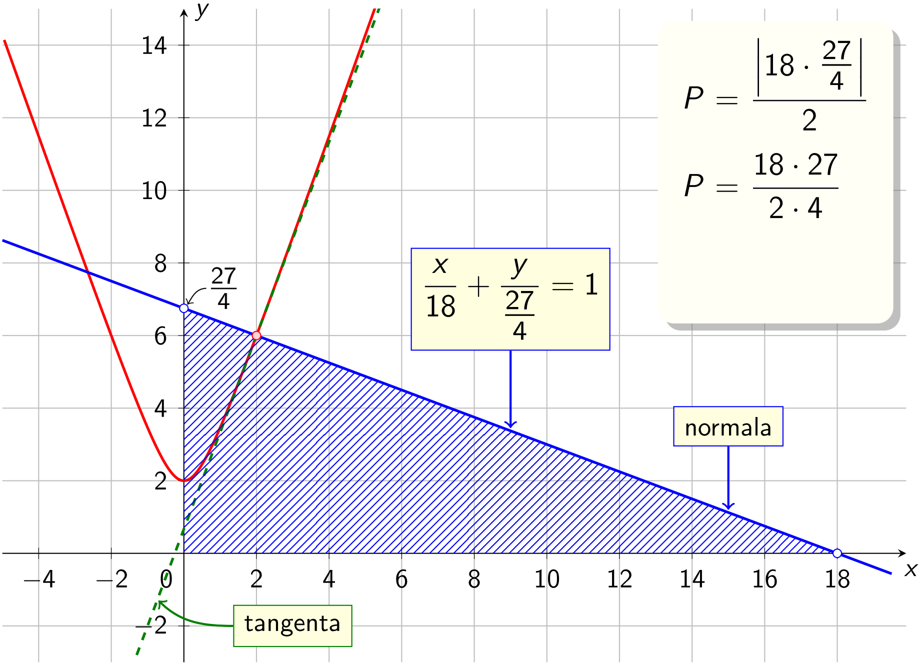
$\frac{27}{4}$
$\frac{x}{18} + \frac{y}{\frac{27}{4}} = 1$
normala
tangenta

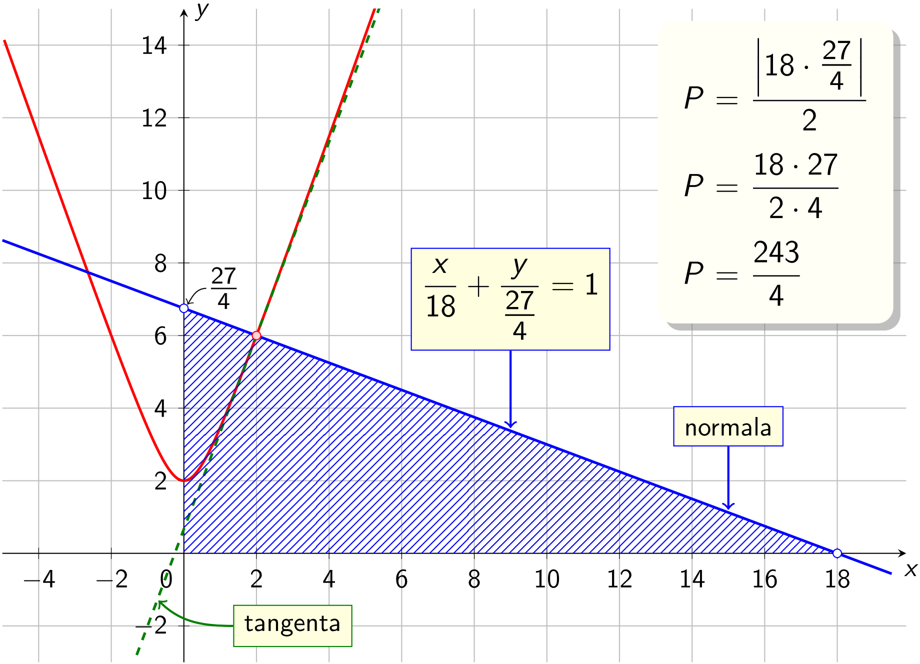


$$P = \frac{\left|18 \cdot \frac{27}{4}\right|}{2}$$



$$P = \frac{\left|18 \cdot \frac{27}{4}\right|}{2}$$

$$P = \frac{18 \cdot 27}{2 \cdot 4}$$



$$P = \frac{\left|18 \cdot \frac{27}{4}\right|}{2}$$

$$P = \frac{18 \cdot 27}{2 \cdot 4}$$

$$P = \frac{243}{4}$$

drugi zadatak

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) =$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1}$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)'$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1}$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1} \cdot 3$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1} \cdot 3 = \frac{3}{3x+1}$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1} \cdot 3 = \frac{3}{3x+1}$$

$$f'(x) = 3 \cdot (3x+1)^{-1}$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1} \cdot 3 = \frac{3}{3x+1}$$

$$f'(x) = 3 \cdot (3x+1)^{-1}$$

- Druga derivacija

$$f''(x) =$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1} \cdot 3 = \frac{3}{3x+1}$$

$$f'(x) = 3 \cdot (3x+1)^{-1}$$

- Druga derivacija

$$f''(x) = 3 \cdot$$

$$\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$(x^n)' = nx^{n-1}$$

Zadatak 2

Odredite četvrtu derivaciju funkcije $f(x) = \ln(3x+1)$.

Rješenje

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

- Prva derivacija

$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1} \cdot 3 = \frac{3}{3x+1}$$

$$f'(x) = 3 \cdot (3x+1)^{-1}$$

- Druga derivacija

$$f''(x) = 3 \cdot (-1) \cdot (3x+1)^{-2}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

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$$f''(x) = 3 \cdot (-1) \cdot (3x+1)^{-2} \cdot$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

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$$f''(x) = 3 \cdot (-1) \cdot (3x+1)^{-2} \cdot (3x+1)'$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

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$$f'(x) = 3 \cdot (3x+1)^{-1}$$

- Druga derivacija

$$f''(x) = 3 \cdot (-1) \cdot (3x+1)^{-2} \cdot (3x+1)' = -3 \cdot (3x+1)^{-2}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

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- Druga derivacija

$$f''(x) = 3 \cdot (-1) \cdot (3x+1)^{-2} \cdot (3x+1)' = -3 \cdot (3x+1)^{-2} \cdot 3$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

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$$f'(x) = \frac{1}{3x+1} \cdot (3x+1)' = \frac{1}{3x+1} \cdot 3 = \frac{3}{3x+1}$$

$$f'(x) = 3 \cdot (3x+1)^{-1}$$

- Druga derivacija

$$f''(x) = 3 \cdot (-1) \cdot (3x+1)^{-2} \cdot (3x+1)' = -3 \cdot (3x+1)^{-2} \cdot 3$$

$$f''(x) = -9 \cdot (3x+1)^{-2}$$

$$\Big((\text{nešto})^n\Big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$(x^n)' = nx^{n-1}$$

- Trećа derivacija

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

$f'''(x) =$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$f'''(x) = -9 \cdot$

$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$ $\boxed{(x^n)' = nx^{n-1}}$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)'$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) =$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot (-3) \cdot (3x+1)^{-4}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot (-3) \cdot (3x+1)^{-4} \cdot$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot (-3) \cdot (3x+1)^{-4} \cdot (3x+1)'$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \qquad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot (-3) \cdot (3x+1)^{-4} \cdot (3x+1)' = -162 \cdot (3x+1)^{-4}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot (-3) \cdot (3x+1)^{-4} \cdot (3x+1)' = -162 \cdot (3x+1)^{-4} \cdot 3$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot (-3) \cdot (3x+1)^{-4} \cdot (3x+1)' = -162 \cdot (3x+1)^{-4} \cdot 3$$

$$f^{(4)}(x) = -486 \cdot (3x+1)^{-4}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{f''(x) = -9 \cdot (3x+1)^{-2}}$$

- Treća derivacija

$$f'''(x) = -9 \cdot (-2) \cdot (3x+1)^{-3} \cdot (3x+1)' = 18 \cdot (3x+1)^{-3} \cdot 3$$

$$f'''(x) = 54 \cdot (3x+1)^{-3}$$

- Četvrta derivacija

$$f^{(4)}(x) = 54 \cdot (-3) \cdot (3x+1)^{-4} \cdot (3x+1)' = -162 \cdot (3x+1)^{-4} \cdot 3$$

$$f^{(4)}(x) = -486 \cdot (3x+1)^{-4}$$

$$\boxed{f^{(n)}(x) = \left(f^{(n-1)}(x)\right)'}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'} \quad \boxed{(x^n)' = nx^{n-1}}$$

treći zadatak

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$y' \cdot e^y$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$y' \cdot e^y$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$y' \cdot e^y +$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$y' \cdot e^y + y \cdot (e^y)'$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' =$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \,\Big/\, \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

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Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

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$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

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Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \,\Big/\, \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot \left(\text{nešto}\right)'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y +$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y'$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' =$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$(e^x)' = e^x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1}$$

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$(e^x)' = e^x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(\qquad\qquad)$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$(e^x)' = e^x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y \qquad)$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + \qquad)$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y)$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$(e^x)' = e^x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) =$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

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$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \,\Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \underline{\qquad\qquad}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

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Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

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$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

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$$y' e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$y' = \underline{\hspace{3cm}}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$y' = \frac{e^{x+1}}{}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$y' = \frac{e^{x+1}}{(\qquad)e^y}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$(e^x)' = e^x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

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$$ye^y = e^{x+1} \,\Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

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$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$y' = \frac{e^{x+1}}{(1+y)e^y}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

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$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{e^{x+1}}{(1+y)e^y}$$

$$(e^x)' = e^x$$

$$y' = \underline{\qquad\qquad}$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$y' = \frac{\mathrm{d}y}{\mathrm{d}x}$$

$$ye^y = e^{x+1} \bigg/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{e^{x+1}}{(1+y)e^y}$$

$$(e^x)' = e^x$$

$$y' = \frac{}{1+y}$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s* $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$\boxed{\frac{a^n}{a^m} = a^{n-m}}$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$y' = \frac{e^{x+1}}{(1+y)e^y}$$

$$\boxed{(e^x)' = e^x}$$

$$y' = \frac{}{1+y}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$y' = \frac{e^{x+1}}{(1+y)e^y}$$

$$y' = \frac{e^{x-y+1}}{1+y}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\frac{a^n}{a^m} = a^{n-m}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Zadatak 3

Odredite derivaciju funkcije $y = y(x)$ zadane implicitno s $ye^y = e^{x+1}$.

Rješenje

$$ye^y = e^{x+1} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$y' \cdot e^y + y \cdot (e^y)' = e^{x+1} \cdot (x+1)'$$

$$y'e^y + y \cdot e^y y' = e^{x+1} \cdot 1$$

$$y'(e^y + ye^y) = e^{x+1}$$

$$y' = \frac{e^{x+1}}{e^y + ye^y}$$

$$y' = \frac{e^{x+1}}{(1+y)e^y}$$

$$\boxed{y' = \frac{e^{x-y+1}}{1+y}}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{\frac{a^n}{a^m} = a^{n-m}}$$

$$\boxed{\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'}$$

$$\boxed{(e^x)' = e^x}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

četvrti zadatak

Zadatak 4

Odredite derivaciju funkcije $y = y(x)$ *zadane implicitno s*

$$y^2 = \cos 3x + \ln \frac{y}{x}.$$

Rješenje

$$y^2 = \cos 3x + \ln \frac{y}{x}$$

Rješenje

$$y^2 = \cos 3x + \ln \frac{y}{x} \Bigg/ \frac{\mathrm{d}}{\mathrm{d}x}$$

Rješenje

$$y^2 = \cos 3x + \ln \frac{y}{x} \Bigg/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$2yy'$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

Rješenje

$$y^2 = \cos 3x + \ln \frac{y}{x} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$2yy'$

Rješenje

$$y^2 = \cos 3x + \ln \frac{y}{x} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$2yy' =$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$\boxed{\big(\cos(\text{nešto})\big)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

Rješenje

$$y^2 = \cos 3x + \ln \frac{y}{x} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$2yy' = -\sin 3x$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$\boxed{\big(\cos(\text{nešto})\big)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

Rješenje

$$y^2 = \cos 3x + \ln \frac{y}{x} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$2yy' = -\sin 3x \cdot (3x)'$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$\boxed{\big(\cos(\text{nešto})\big)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

Rješenje $\boxed{(\ln x)' = \frac{1}{x}}$

$$y^2 = \cos 3x + \ln \frac{y}{x} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$2yy' = -\sin 3x \cdot (3x)' +$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$\boxed{\left(\cos(\text{nešto})\right)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

$$\boxed{\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

Rješenje

$$\boxed{(\ln x)' = \frac{1}{x}}$$

$$y^2 = \cos 3x + \ln \frac{y}{x} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$2yy' = -\sin 3x \cdot (3x)' + \frac{1}{\frac{y}{x}}$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$\boxed{\big(\cos(\text{nešto})\big)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

Rješenje

$$\boxed{(\ln x)' = \frac{1}{x}}$$

$$y^2 = \cos 3x + \ln\frac{y}{x} \Bigg/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$2yy' = -\sin 3x \cdot (3x)' + \frac{1}{\frac{y}{x}} \cdot \left(\frac{y}{x}\right)'$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$\boxed{\big(\cos(\text{nešto})\big)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

Rješenje

$$\boxed{(\ln x)' = \frac{1}{x}}$$

$$y^2 = \cos 3x + \ln \frac{y}{x} \Bigg/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$2yy' = -\sin 3x \cdot (3x)' + \frac{1}{\frac{y}{x}} \cdot \left(\frac{y}{x}\right)'$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$2yy' =$$

$$\boxed{\left(\cos(\text{nešto})\right)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

$$\boxed{\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

Rješenje

$$\boxed{(\ln x)' = \frac{1}{x}}$$

$$y^2 = \cos 3x + \ln\frac{y}{x} \;\Big/\; \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$2yy' = -\sin 3x \cdot (3x)' + \frac{1}{\frac{y}{x}} \cdot \left(\frac{y}{x}\right)'$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$2yy' = -3\sin 3x$$

$$\boxed{\big(\cos(\text{nešto})\big)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

Rješenje

$$\boxed{(\ln x)' = \frac{1}{x}}$$

$$y^2 = \cos 3x + \ln\frac{y}{x} \;\Big/\; \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{(\cos x)' = -\sin x}$$

$$\boxed{y' = \frac{\mathrm{d}y}{\mathrm{d}x}}$$

$$2yy' = -\sin 3x \cdot (3x)' + \frac{1}{\frac{y}{x}} \cdot \left(\frac{y}{x}\right)'$$

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'}$$

$$2yy' = -3\sin 3x +$$

$$\boxed{\left(\cos(\text{nešto})\right)' = -\sin(\text{nešto}) \cdot (\text{nešto})'}$$

$$\boxed{\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

Rješenje

$$\boxed{(\ln x)' = \frac{1}{x}}$$

$$y^2 = \cos 3x + \ln \frac{y}{x} \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{(\cos x)' = -\sin x}$$

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peti zadatak

Zadatak 5

Odredite derivaciju funkcije $y = \left(x + \operatorname{tg}^2 x\right)^{\operatorname{ctg} x}$.

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Rješenje $\boxed{\log_a x^k = k \log_a x}$

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Rješenje

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$$y = \left(x + \operatorname{tg}^2 x\right)^{\operatorname{ctg} x} \,/\, \ln$$

$$\ln y = \ln \left(x + \operatorname{tg}^2 x\right)^{\operatorname{ctg} x}$$

$$\ln y = \operatorname{ctg} x \cdot \ln \left(x + \operatorname{tg}^2 x\right)$$

Zadatak 5

Odredite derivaciju funkcije $y = \left(x + \operatorname{tg}^2 x\right)^{\operatorname{ctg} x}$.

Rješenje

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Zadatak 5

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Rješenje

$$\boxed{\log_a x^k = k \log_a x}$$

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Zadatak 5

$$\boxed{(uv)'(x) = u'(x)\cdot v(x) + u(x)\cdot v'(x)}$$

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Zadatak 5

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

Odredite derivaciju funkcije $y = \left(x + \operatorname{tg}^2 x\right)^{\operatorname{ctg} x}$.

Rješenje

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$$y' = \left[\frac{\operatorname{ctg} x}{x + \operatorname{tg}^2 x} \cdot \left(1 + \frac{2\operatorname{tg} x}{\cos^2 x}\right) \qquad\qquad \right]$$

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$$y' = \left[\frac{\operatorname{ctg} x}{x + \operatorname{tg}^2 x} \cdot \left(1 + \frac{2\operatorname{tg} x}{\cos^2 x}\right) - \qquad\qquad\qquad \right]$$

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$$\boxed{y' = \left[\frac{\operatorname{ctg} x}{x + \operatorname{tg}^2 x} \cdot \left(1 + \frac{2 \operatorname{tg} x}{\cos^2 x}\right) - \frac{\ln\left(x + \operatorname{tg}^2 x\right)}{\sin^2 x}\right] \cdot \left(x + \operatorname{tg}^2 x\right)^{\operatorname{ctg} x}}$$

šesti zadatak

Zadatak 6

Odredite derivaciju funkcije

$$y = \frac{\sqrt{x+2}}{\sqrt[3]{x+1} \cdot (x+3)^5}.$$

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Rješenje

- Funkciju možemo derivirati direktno koristeći pravila za derivaciju kvocijenta, produkta i složene funkcije.

Zadatak 6

Odredite derivaciju funkcije

$$y = \frac{\sqrt{x+2}}{\sqrt[3]{x+1} \cdot (x+3)^5}.$$

Rješenje

- Funkciju možemo derivirati direktno koristeći pravila za derivaciju kvocijenta, produkta i složene funkcije.
- Međutim, u ovom slučaju *logaritamska derivacija* znatno olakšava postupak deriviranja.

$$y = \frac{\sqrt{x+2}}{\sqrt[3]{x+1} \cdot (x+3)^5}$$

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$$\boxed{\sqrt[n]{x^m} = x^{\frac{m}{n}}}$$

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$$y = \frac{\sqrt{x+2}}{\sqrt[3]{x+1} \cdot (x+3)^5}$$

$$y = \frac{(x+2)^{\frac{1}{2}}}{}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

$$y = \frac{\sqrt{x+2}}{\sqrt[3]{x+1} \cdot (x+3)^5}$$

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$$\boxed{\sqrt[n]{x^m} = x^{\frac{m}{n}}}$$

$$y = \frac{(x+2)^{\frac{1}{2}}}{(x+1)^{\frac{1}{3}}\cdot(x+3)^5} \Big/ \ln$$

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$$\boxed{\log_a \frac{x}{y} = \log_a x - \log_a y}$$

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$$\log_a \frac{x}{y} = \log_a x - \log_a y$$

$$\log_a (xy) = \log_a x + \log_a y$$

$$y = \frac{\sqrt{x+2}}{\sqrt[3]{x+1} \cdot (x+3)^5}$$

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$$\boxed{\log_a x^k = k \log_a x}$$

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$$\ln y = \ln (x+2)^{\frac{1}{2}} - \ln (x+1)^{\frac{1}{3}} - \ln (x+3)^5$$

$$\ln y = \frac{1}{2} \ln (x+2)$$

$$y = \frac{\sqrt{x+2}}{\sqrt[3]{x+1} \cdot (x+3)^5}$$

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$$\boxed{(\ln x)' = \frac{1}{x}} \qquad \boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

$$\ln y = \frac{1}{2}\ln(x+2) - \frac{1}{3}\ln(x+1) - 5\ln(x+3) \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

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$$\frac{1}{y}$$

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$$\frac{1}{y} \cdot y'$$

$$\boxed{(\ln x)' = \frac{1}{x}} \qquad \boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

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$$\frac{1}{y} \cdot y' =$$

$$\boxed{(\ln x)' = \frac{1}{x}} \qquad \boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

$$\ln y = \frac{1}{2}\ln(x+2) - \frac{1}{3}\ln(x+1) - 5\ln(x+3) \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{y} \cdot y' = \frac{1}{2} \cdot$$

$$\boxed{(\ln x)' = \frac{1}{x}} \qquad \boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

$$\ln y = \frac{1}{2}\ln(x+2) - \frac{1}{3}\ln(x+1) - 5\ln(x+3) \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{y} \cdot y' = \frac{1}{2} \cdot \frac{1}{x+2}$$

$$\boxed{(\ln x)' = \frac{1}{x}} \qquad \boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

$$\ln y = \frac{1}{2}\ln(x+2) - \frac{1}{3}\ln(x+1) - 5\ln(x+3) \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{y} \cdot y' = \frac{1}{2} \cdot \frac{1}{x+2} \cdot (x+2)'$$

$\boxed{(\ln x)' = \frac{1}{x}}$ $\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$

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$$\frac{1}{y} \cdot y' = \frac{1}{2} \cdot \frac{1}{x+2} \cdot (x+2)' - \frac{1}{3} \cdot \frac{1}{x+1} \cdot (x+1)' - 5 \cdot$$

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$$\frac{1}{y} \cdot y' = \frac{1}{2} \cdot \frac{1}{x+2} \cdot (x+2)' - \frac{1}{3} \cdot \frac{1}{x+1} \cdot (x+1)' - 5 \cdot \frac{1}{x+3} \cdot (x+3)'$$

$$\frac{y'}{y} = \frac{1}{2x+4}$$

$$\boxed{(\ln x)' = \frac{1}{x}} \qquad \boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$

$$\ln y = \frac{1}{2}\ln(x+2) - \frac{1}{3}\ln(x+1) - 5\ln(x+3) \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{y}\cdot y' = \frac{1}{2}\cdot\frac{1}{x+2}\cdot\underbrace{(x+2)'}_{=1} - \frac{1}{3}\cdot\frac{1}{x+1}\cdot(x+1)' - 5\cdot\frac{1}{x+3}\cdot(x+3)'$$

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$$\ln y = \frac{1}{2}\ln(x+2) - \frac{1}{3}\ln(x+1) - 5\ln(x+3) \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

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sedmi zadatak

Zadatak 7

Odredite jednadžbu tangente i normale na krivulju

$$\ln(xy) = x^3y^3 - 1$$

u točki $T(1,1)$.

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Rješenje

- Jednadžba tangente na graf funkcije $y = f(x)$ u točki $T_0(x_0, y_0)$

$$t \ldots\ y - y_0 = k_t \cdot (x - x_0)$$

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Zadatak 7

Funkcija $y = y(x)$ je zadana implicitno

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$$\ln(xy) = x^3y^3 - 1$$

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Odredite jednadžbu tangente i normale na krivulju

$$\ln(xy) = x^3y^3 - 1$$

x_0 y_0

u točki $T(1,1)$.

$$\ln(1 \cdot 1) = 1^3 \cdot 1^3 - 1$$

Rješenje

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Odredite jednadžbu tangente i normale na krivulju

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u točki $T(1,1)$.

$$\ln(1 \cdot 1) = 1^3 \cdot 1^3 - 1 \rightsquigarrow 0 = 0$$

Rješenje

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Odredite jednadžbu tangente i normale na krivulju

$$\ln(xy) = x^3y^3 - 1$$

zadana točka pripada krivulji

u točki $T(\overset{x_0}{1}, \overset{y_0}{1})$.

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Rješenje

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$$\ln(xy) = x^3y^3 - 1$$

$$\ln(xy) = x^3y^3 - 1 \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\ln(xy) = x^3y^3 - 1 \;\Big/\; \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'}$$ $$\boxed{(\ln x)' = \frac{1}{x}}$$

$$\ln{(xy)} = x^3y^3 - 1 \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{xy}$$

$$\boxed{\big(\ln{(\text{nešto})}\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

$$\ln(xy) = x^3y^3 - 1 \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{xy} \cdot (xy)'$$

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}}$$

$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

$$\ln(xy) = x^3y^3 - 1 \,\Big/\, \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{xy} \cdot (xy)' =$$

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$$\boxed{(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)}$$

$$\ln(xy) = x^3y^3 - 1 \quad \Big/ \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{xy} \cdot (xy)' = 3x^2$$

$$\boxed{\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'} \quad \boxed{(\ln x)' = \frac{1}{x}} \quad \boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{(uv)'(x) = u'(x)\cdot v(x) + u(x)\cdot v'(x)}$$

$$\ln(xy) = x^3y^3 - 1 \;\Big/\, \frac{\mathrm{d}}{\mathrm{d}x}$$

$$\frac{1}{xy}\cdot(xy)' = 3x^2\cdot$$

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$$xy' - 3x^4y^3y' = 3x^3y^4 - y$$

$$\left(x - 3x^4y^3\right)y'$$

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$$y'(x) = \frac{3x^3y(x)^4 - y(x)}{x - 3x^4y(x)^3}$$

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$$k_t = y'(1) = \frac{3\cdot 1^3\cdot 1^4 - 1}{1 - 3\cdot 1^4\cdot 1^3} = \frac{2}{-2}$$

$$k_t = -1$$

$$y_0 = y(x_0) \qquad T(\overset{x_0}{1}, \overset{y_0}{1})$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}}\cdot(\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

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$$(uv)'(x) = u'(x)\cdot v(x) + u(x)\cdot v'(x)$$

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$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 1 = -1 \cdot (x - 1)$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 1 = -1 \cdot (x - 1)$$
$$y - 1 = -x + 1$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$
\begin{aligned}
y - y_0 &= k_t \cdot (x - x_0) \\
y - 1 &= -1 \cdot (x - 1) \\
y - 1 &= -x + 1 \\
y &= -x + 2
\end{aligned}
$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$

$$y - 1 = -1 \cdot (x - 1)$$

$$y - 1 = -x + 1$$

$$t \ldots y = -x + 2$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$

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$$y - y_0 = k_t \cdot (x - x_0)$$

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- Jednadžba normale

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 1 = -1 \cdot (x - 1)$$
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- Jednadžba normale

$$y - y_0 = k_n \cdot (x - x_0)$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

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- Jednadžba normale

$$y - y_0 = k_n \cdot (x - x_0)$$
$$y - 1 = 1 \cdot (x - 1)$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 1 = -1 \cdot (x - 1)$$
$$y - 1 = -x + 1$$
$$\boxed{t \ldots y = -x + 2}$$

- Jednadžba normale

$$y - y_0 = k_n \cdot (x - x_0)$$
$$y - 1 = 1 \cdot (x - 1)$$
$$y - 1 = x - 1$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 1 = -1 \cdot (x - 1)$$
$$y - 1 = -x + 1$$
$$\boxed{t \ldots y = -x + 2}$$

- Jednadžba normale

$$y - y_0 = k_n \cdot (x - x_0)$$
$$y - 1 = 1 \cdot (x - 1)$$
$$y - 1 = x - 1$$
$$y = x$$

$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

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$$y - y_0 = k_t \cdot (x - x_0)$$
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$\boxed{x_0 = 1}$ $\boxed{y_0 = 1}$ $\boxed{k_t = -1}$ $\boxed{k_n = 1}$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$
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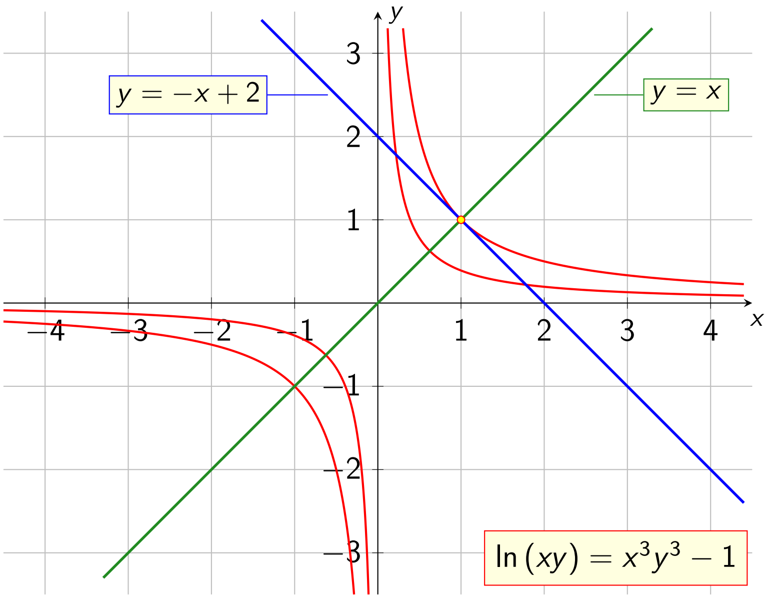
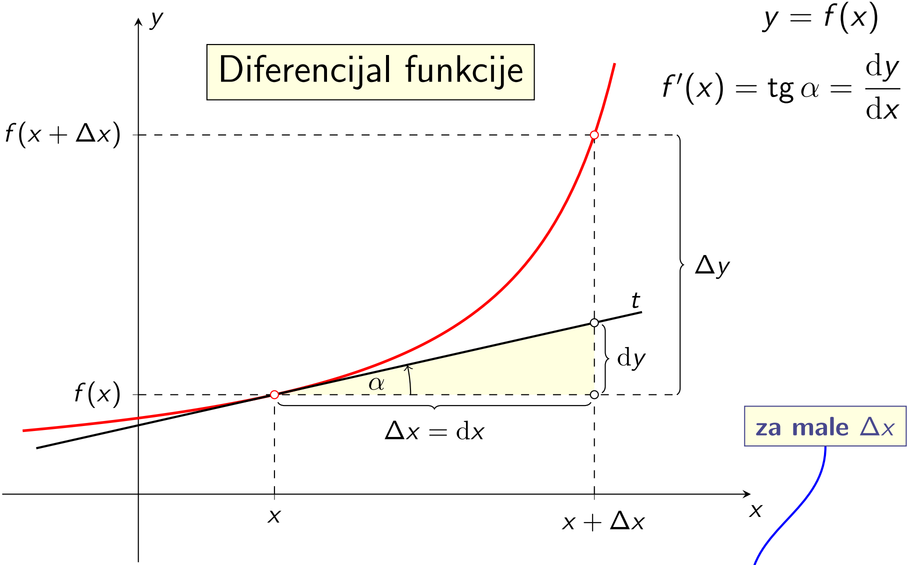
- Jednadžba normale

$$y - y_0 = k_n \cdot (x - x_0)$$
$$y - 1 = 1 \cdot (x - 1)$$
$$y - 1 = x - 1$$
$$\boxed{n \ldots y = x}$$


y
x
3
2
1
−1
−2
−3
−4
−3
−2
−1
1
2
3
4
$y = -x + 2$
$y = x$
$\ln(xy) = x^3y^3 - 1$

osmi zadatak



$$y = f(x)$$

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

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

$$f(x+\Delta x) \approx f(x) + f'(x)\,\mathrm{d}x$$

Zadatak 8

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Zadatak 8

$$f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

Zadatak 8

$$f(x_0+\mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

- $f(x) = \sqrt{x^3}$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}$

$$f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x$$

Zadatak 8

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) =$

Zadatak 8

$$f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$(x^n)' = nx^{n-1}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) =$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \dfrac{3}{2}x^{\frac{1}{2}}$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \frac{3}{2}x^{\frac{1}{2}} = \frac{3}{2}\sqrt{x}$

Zadatak 8

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Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \dfrac{3}{2}x^{\frac{1}{2}} = \dfrac{3}{2}\sqrt{x}$
- $x_0 = 6.25$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \dfrac{3}{2}x^{\frac{1}{2}} = \dfrac{3}{2}\sqrt{x}$
- $x_0 = 6.25,\ \mathrm{d}x = 0.01$

$$f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x$$

Zadatak 8

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$(x^n)' = nx^{n-1}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \frac{3}{2}x^{\frac{1}{2}} = \frac{3}{2}\sqrt{x}$
- $x_0 = 6.25,\ \mathrm{d}x = 0.01,\ x_0 + \mathrm{d}x = 6.26$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

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Zadatak 8

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Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

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- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \dfrac{3}{2}x^{\frac{1}{2}} = \dfrac{3}{2}\sqrt{x}$
- $x_0 = 6.25,\ \mathrm{d}x = 0.01,\ x_0 + \mathrm{d}x = 6.26$
- $f(x_0) = f(6.25)$

Zadatak 8

$$f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

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- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \dfrac{3}{2}x^{\frac{1}{2}} = \dfrac{3}{2}\sqrt{x}$
- $x_0 = 6.25,\ \mathrm{d}x = 0.01,\ x_0 + \mathrm{d}x = 6.26$
- $f(x_0) = f(6.25) = \sqrt{6.25^3}$

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Zadatak 8

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \dfrac{3}{2}x^{\frac{1}{2}} = \dfrac{3}{2}\sqrt{x}$
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$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Zadatak 8

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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Zadatak 8

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Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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Zadatak 8

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Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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Zadatak 8

$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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Zadatak 8

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Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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Zadatak 8

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Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$f(6.26) \approx$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25)$$

Zadatak 8

$$\boxed{f(x_0+\mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25) +$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25) + f'(6.25)$$

Zadatak 8

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot$$

Zadatak 8

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$
$$f(6.26) \approx 15.625$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

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$$f(6.26) \approx 15.625 +$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx 15.625 + 3.75$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx 15.625 + 3.75 \cdot$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx 15.625 + 3.75 \cdot 0.01$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx 15.625 + 3.75 \cdot 0.01$$

$$f(6.26) \approx$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx 15.625 + 3.75 \cdot 0.01$$

$$f(6.26) \approx 15.6625$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx 15.625 + 3.75 \cdot 0.01$$

$$f(6.26) \approx 15.6625$$

$$\sqrt{6.26^3} \approx 15.6625$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx 15.625 + 3.75 \cdot 0.01$$

$$f(6.26) \approx 15.6625$$

$$\boxed{\sqrt{6.26^3} \approx 15.6625}$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \frac{3}{2}x^{\frac{1}{2}} = \frac{3}{2}\sqrt{x}$
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$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$

$$f(6.26) \approx 15.625 + 3.75 \cdot 0.01$$

$$f(6.26) \approx 15.6625$$

$$\boxed{\sqrt{6.26^3} \approx 15.6625}$$

$$\boxed{\sqrt{6.26^3} = 15.662514996002\cdots}$$

Zadatak 8

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\sqrt{6.23^3} \approx ???}$$

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \frac{3}{2}x^{\frac{1}{2}} = \frac{3}{2}\sqrt{x}$
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- $f(x_0) = f(6.25) = \sqrt{6.25^3} = \sqrt{6.25}^{\,3} = 2.5^3 = 15.625$
- $f'(x_0) = f'(6.25) = \frac{3}{2}\sqrt{6.25} = 1.5 \cdot 2.5 = 3.75$

$$f(6.26) \approx f(6.25) + f'(6.25) \cdot 0.01$$
$$f(6.26) \approx 15.625 + 3.75 \cdot 0.01$$
$$f(6.26) \approx 15.6625$$

$$\boxed{\sqrt{6.26^3} \approx 15.6625}$$

$$\boxed{\sqrt{6.26^3} = 15.662514996002\cdots}$$

$$\boxed{f(x_0+\mathrm{d}x)\approx f(x_0)+f'(x_0)\,\mathrm{d}x}$$

Zadatak 8

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\sqrt{6.23^3}\approx ???}$$

- $f(x)=\sqrt{x^3}=x^{\frac{3}{2}}, \quad f'(x)=\frac{3}{2}x^{\frac{1}{2}}=\frac{3}{2}\sqrt{x}$
- $x_0=6.25,\ \mathrm{d}x=0.01,\ x_0+\mathrm{d}x=6.26$
- $f(x_0)=f(6.25)=\sqrt{6.25^3}=\sqrt{6.25}^{\,3}=2.5^3=15.625$
- $f'(x_0)=f'(6.25)=\frac{3}{2}\sqrt{6.25}=1.5\cdot 2.5=3.75$

$$f(6.26)\approx f(6.25)+f'(6.25)\cdot 0.01$$

$$f(6.26)\approx 15.625+3.75\cdot 0.01$$

$$f(6.26)\approx 15.6625$$

$$\boxed{\sqrt{6.26^3}\approx 15.6625}$$

$$\boxed{\sqrt{6.26^3}=15.662514996002\cdots}$$

$$\boxed{f(x_0 + \mathrm{d}x) \approx f(x_0) + f'(x_0)\,\mathrm{d}x}$$

Zadatak 8

Pomoću diferencijala približno izračunajte $\sqrt{6.26^3}$.

Rješenje

$$\boxed{(x^n)' = nx^{n-1}}$$

$$\boxed{\sqrt{6.23^3} \approx ???}$$

Domaća zadaća

- $f(x) = \sqrt{x^3} = x^{\frac{3}{2}}, \quad f'(x) = \dfrac{3}{2}x^{\frac{1}{2}} = \dfrac{3}{2}\sqrt{x}$
- $x_0 = 6.25,\ \mathrm{d}x = 0.01,\ x_0 + \mathrm{d}x = 6.26$
- $f(x_0) = f(6.25) = \sqrt{6.25^3} = \sqrt{6.25}^{\,3} = 2.5^3 = 15.625$
- $f'(x_0) = f'(6.25) = \dfrac{3}{2}\sqrt{6.25} = 1.5 \cdot 2.5 = 3.75$

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