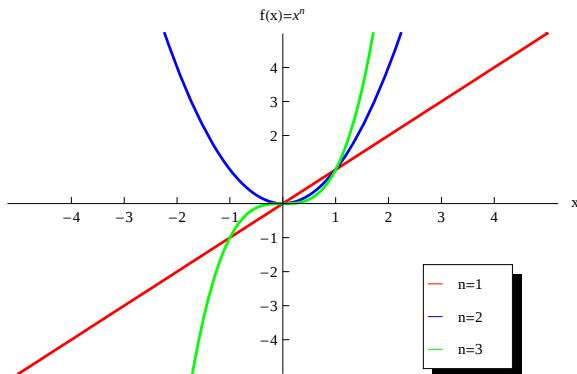


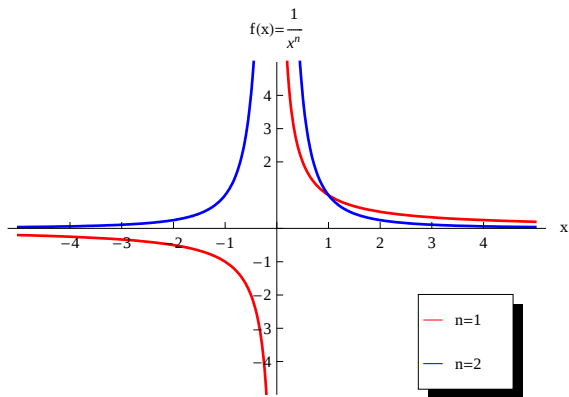
0. PONAVLJANJE - PODRUČJE DEFINICIJE FUNKCIJE

1. POLINOMI



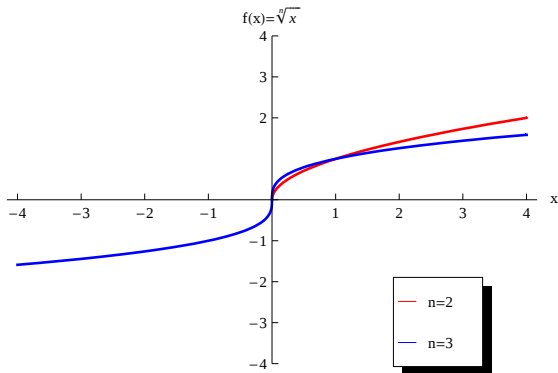
$$\mathcal{D}_f = \mathbb{R}, \quad \mathcal{R}_f = \begin{cases} \mathbb{R} & n \text{ neparan} \\ [0, +\infty) & n \text{ paran} \end{cases}$$

2. RACIONALNE FUNKCIJE



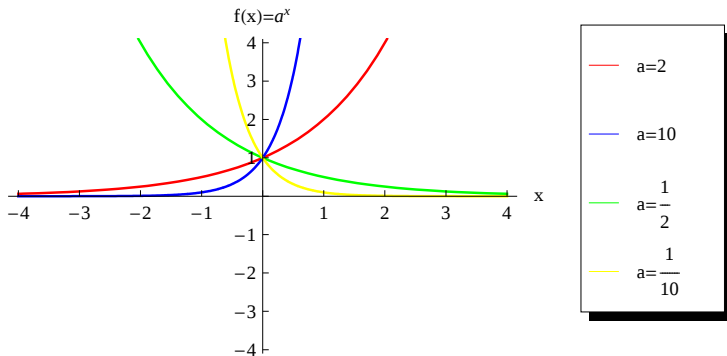
$$\mathcal{D}_f = \mathbb{R} \setminus \{0\}, \quad \mathcal{R}_f = \begin{cases} \mathbb{R} \setminus \{0\} & n \text{ neparan} \\ \langle 0, +\infty \rangle, & n \text{ paran} \end{cases}$$

3. IRACIONALNE FUNKCIJE



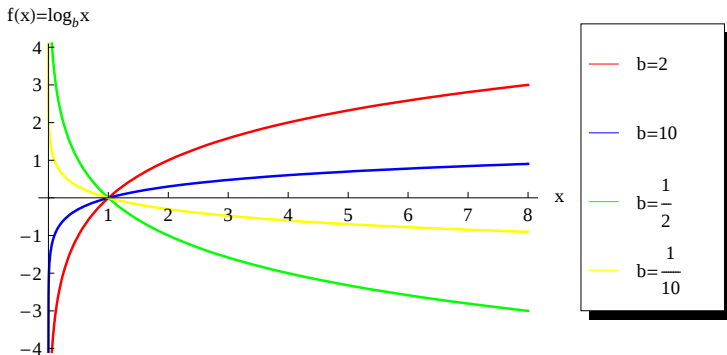
$$\mathcal{D}_f = \begin{cases} [0, +\infty), & n \text{ paran} \\ \mathbb{R} & n \text{ neparan} \end{cases}, \quad \mathcal{R}_f = \begin{cases} [0, +\infty) & n \text{ paran} \\ \mathbb{R}, & n \text{ neparan} \end{cases}$$

4. EKSPONENCIJALNE FUNKCIJE



$$\mathcal{D}_f = \mathbb{R}$$
$$\mathcal{R}_f = \langle 0, \infty \rangle$$

5. LOGARITAMSKE FUNKCIJE

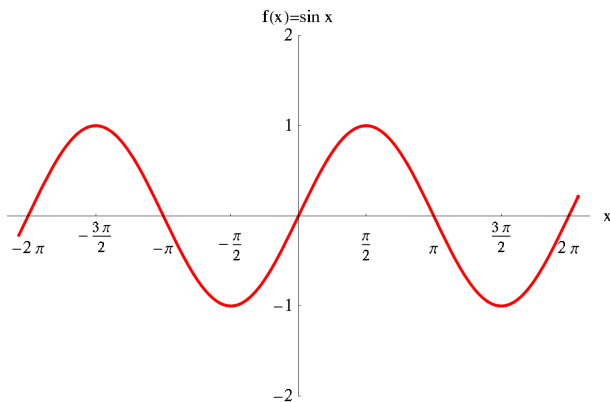


$$\mathcal{D}_f = \langle 0, \infty \rangle$$

$$\mathcal{R}_f = \mathbb{R}$$

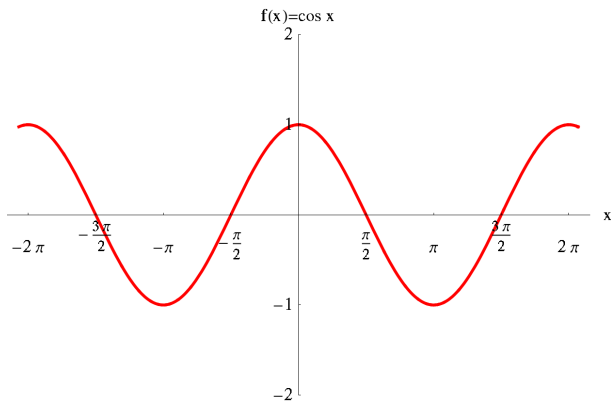
6. TRIGONOMETRIJSKE FUNKCIJE

- SINUS



$$\mathcal{D}_f = \mathbb{R}$$
$$\mathcal{R}_f = [-1, 1]$$

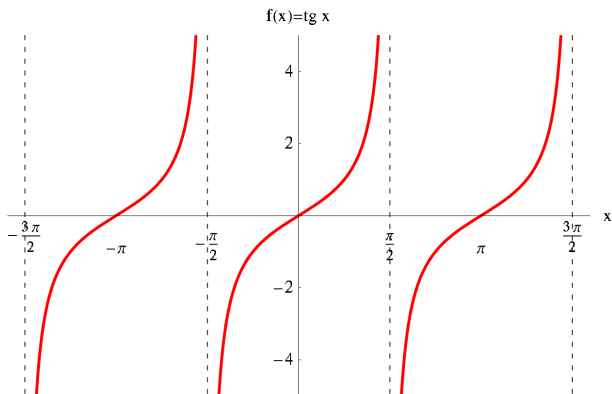
- KOSINUS



$$\mathcal{D}_f = \mathbb{R}$$

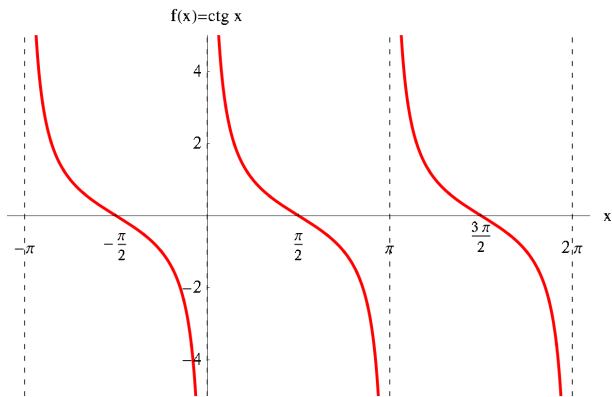
$$\mathcal{R}_f = [-1, 1]$$

- TANGENS



$$\mathcal{D}_f = \mathbb{R} \setminus \left\{ \frac{\pi}{2} + k\pi : k \in \mathbb{Z} \right\}$$
$$\mathcal{R}_f = \mathbb{R}$$

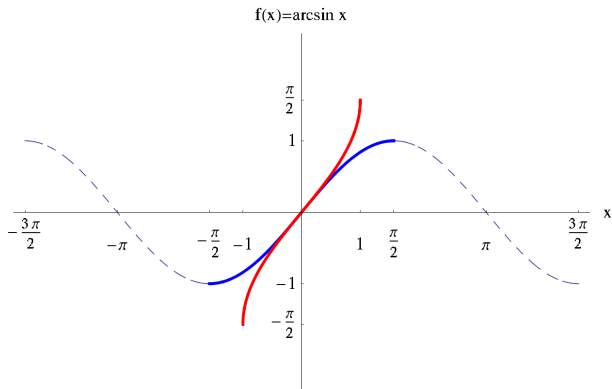
- KOTANGENS



$$\mathcal{D}_f = \mathbb{R} \setminus \{k\pi : k \in \mathbb{Z}\}$$
$$\mathcal{R}_f = \mathbb{R}$$

7. CIKLOMETRIJSKE FUNKCIJE

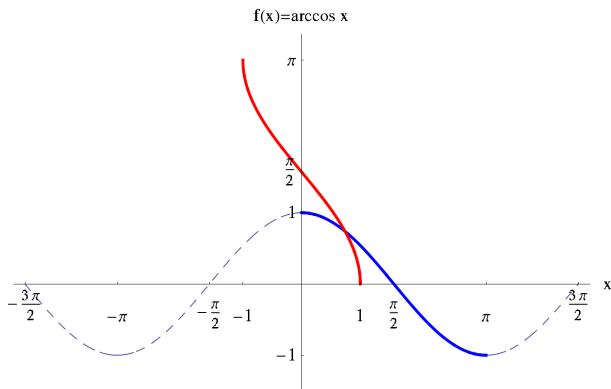
- ARKUS SINUS



$$\mathcal{D}_f = [-1, 1]$$

$$\mathcal{R}_f = \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$$

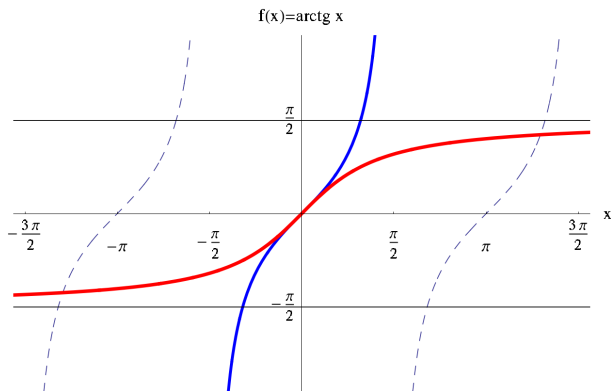
- ARKUS KOSINUS



$$\mathcal{D}_f = [-1, 1]$$

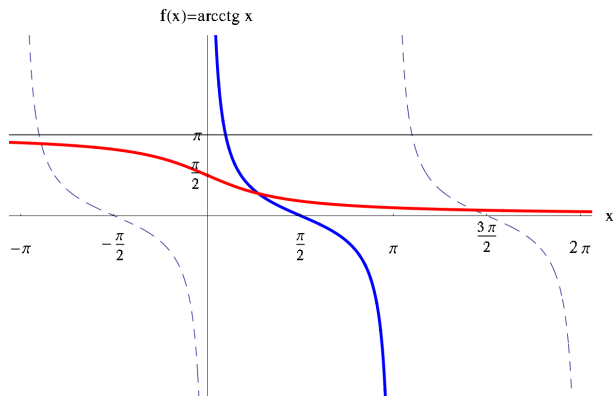
$$\mathcal{R}_f = [0, \pi]$$

- ARKUS TANGENS



$$\mathcal{D}_f = \mathbb{R}$$
$$\mathcal{R}_f = \left\langle -\frac{\pi}{2}, \frac{\pi}{2} \right\rangle$$

- ARKUS KOTANGENS



$$\mathcal{D}_f = \mathbb{R}$$

$$\mathcal{R}_f = \langle 0, \pi \rangle$$

0.1. Odredite područje definicije sljedećih funkcija:

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

$$(b) f(x) = \sqrt{\frac{x - 1}{(2 - x)(x - 3)}}$$

$$(c) f(x) = \sqrt[4]{\frac{|3 + x - x^2| - 3}{1}}$$

$$(d) f(x) = \frac{1}{\sqrt{-e^{6x} + 9e^{3x} - 8}}$$

0.2. Odredite područje definicije sljedećih funkcija:

$$(a) f(x) = \log \left(\left| \frac{5x+2}{2x-3} \right| - 3 \right)$$

$$(b) f(x) = \sqrt{x^2 + 4x - 5} \cdot \log_2(x+1)$$

$$(c) f(x) = \frac{\log_x(e^x - 2)}{\sqrt{x^2 - 5x + 6}}$$

$$(d) f(x) = \sqrt{\log_{\frac{1}{3}}(x-1)}$$

$$(e) f(x) = \frac{\sqrt{\ln(3-x)}}{\ln|x|}$$

$$(f) f(x) = \log \frac{x^2 - 3x + 2}{x+1}$$

$$(g) f(x) = \left[\ln \left(\frac{x+6}{2x-3} \right) \right]^{-\frac{2}{3}}$$

0.3. Odredite područje definicije sljedećih funkcija:

(a) $f(x) = \ln \left(\cos x + \frac{1}{2} \right)$

(b) $f(x) = \sqrt{\operatorname{tg} x} + \operatorname{arctg} \sqrt{x}$

(c) $f(x) = \sqrt{16 - x^2} + \log(\sin(x - 3))$

(d) $f(x) = \sqrt[3]{\arcsin(x^2 - 5x + 7)}$

(e) $f(x) = \arccos(\log_{\frac{1}{3}} x)$

(f) $f(x) = \ln \left(\arcsin \frac{x+2}{5-x} \right)$

(g) $f(x) = \ln \left(\arcsin \frac{1-x^2}{2+x} \right)$

(h) $f(x) = \log \left(\operatorname{arctg} \frac{4-3x-x^2}{x+2} \right)$

(i) $f(x) = \sqrt{\log_2(x^2 + x) - 1} + \arccos(x - 3)$

(j) $f(x) = \log \left(\frac{6}{6+x-x^2} - 1 \right) + \arcsin \frac{x+1}{3}$

0.4. Skicirajte grafove sljedećih funkcija:

(a) $f(x) = 2 \sin x$

(b) $f(x) = \sin(2x)$

(c) $f(x) = \sin \frac{x}{2}$

(d) $f(x) = \sin \left(x + \frac{\pi}{2} \right)$

(e) $f(x) = \sin \left(2x + \frac{\pi}{2} \right)$

(f) $f(x) = 3 \sin \left(2x + \frac{\pi}{2} \right) - 1$

(g) $f(x) = \frac{1}{2} \sin \left(\frac{x}{2} + \pi \right) + 2$

(h) $f(x) = \cos^2 x$

(i) $f(x) = |\sin x|$

(j) $f(x) = \sin |x|$

(k) $f(x) = \pi + |\arcsin(x - 1)|$

(l) $f(x) = \operatorname{arctg}(x + 2) - \frac{\pi}{2}$

- 0.1. (a) $[1, 3)$
(b) $\langle -\infty, 1] \cup \langle 2, 3)$
(c) $\langle -\infty, -2] \cup [0, 1] \cup [3, +\infty)$
(d) $\langle 0, \ln 2)$
- 0.2. (a) $\langle \frac{7}{11}, 11 \rangle \setminus \{\frac{3}{2}\}$
(b) $\langle -1, +\infty)$
(c) $\langle \ln 2, 1) \cup \langle 1, 2) \cup \langle 3, +\infty)$
(d) $\langle 1, 2]$
(e) $\langle -\infty, 2] \setminus \{-1, 0, 1\}$
(f) $\langle -1, 1) \cup \langle 2, +\infty)$
(g) $\langle -\infty, -6) \cup \langle \frac{3}{2}, 9) \cup \langle 9, +\infty)$

- 0.3. (a) $\cup_{k \in \mathbb{Z}} \langle -\frac{2\pi}{3} + 2k\pi, \frac{2\pi}{3} + 2k\pi \rangle$
(b) $\cup_{k \in \mathbb{N}_0} [k\pi, \frac{(2k+1)\pi}{2}]$
(c) $\langle 3 - 2\pi, 3 - \pi \rangle \cup \langle 3, 4]$
(d) $[2, 3]$
(e) $[\frac{1}{3}, 3]$
(f) $\langle -2, \frac{3}{2}]$
(g) $\langle -1, 1 \rangle$
(h) $\langle -\infty, -4 \rangle \cup \langle -2, 1 \rangle$
(i) $[2, 4]$
(j) $\langle -2, 0 \rangle \cup \langle 1, 3 \rangle$