SLOŽENÁ FUNKCE

Příklad 1. Načrtněte grafy funkcí:

1) $y = |x|$, $y = |x| + 1$, $y = |x - 3|$, $y = |x + 1| - 2$

2) $y = 1 - 2x$, $y = |1 - 2x|$

3) $y = x^2$, $y = 2x^2$, $y = \frac{1}{2}x^2$

4) $y = 1 - x^2$, $y = |x^2 - 2|$

5) $y = x^2 - 4x + 3$

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

7) $y = \mathrm{e}^{x-1} - 2$, $y = 1 - \mathrm{e}^x$

8) $y = \log_2 x$, $y = \log_{\frac{1}{2}} x$

9) $y = \ln x$, $y = \ln(2 - x)$

10) $y = \sin x$, $y = 2\sin x$, $y = \sin 2x$

11) $y = 1 + \sin(x - \frac{\pi}{4})$

Příklad 2. Určete definiční obor funkce f:

1) $f : y = \log_2(-x^2 + 3x - 2)$ $\qquad [D(f) = (1, 2)]$

2) $f : y = \dfrac{\sqrt{9 - 4x^2}}{x + 1}$ $\qquad \left[D(f) = \langle -\frac{3}{2}, \frac{3}{2}\rangle - \{-1\}\right]$

3) $f : y = \sqrt{\dfrac{x + 5}{x - 3}}$ $\qquad [D(f) = (-\infty, -5\rangle \cup (3, \infty)]$

4) $f : y = \dfrac{\log(x^2 + 5x)}{\sqrt{3 - x}}$ $\qquad [D(f) = (-\infty, -5) \cup (0, 3)]$

5) $f : y = \dfrac{\sqrt{x^2 - 4x}}{\ln(x + 3)}$ $\qquad [D(f) = (-3, -2) \cup (-2, 0\rangle \cup \langle 4, \infty)]$

6) $f : y = \sqrt{2x^2 - 5x - 3}$ $\qquad \left[D(f) = (-\infty, -\frac{1}{2}\rangle \cup \langle 3, \infty)\right]$

7) $f : y = \sqrt[4]{-x^2 + 5x - 4} + \log_4(x^2 - 5x + 6)$ $\qquad [D(f) = \langle 1, 2) \cup (3, 4\rangle]$

8) $f : y = \log_3 \dfrac{x + 4}{2 - x}$ $\qquad [D(f) = (-4, 2)]$

9) $f : y = \dfrac{\sqrt{x^2 - 2x}}{\ln(1 - x)}$ $\qquad [D(f) = (-\infty, 0) \cup \langle 2, 1)]$

10) $f : y = \dfrac{\sqrt{4 + 3x - x^2}}{x - 3} + \log(x^2 + x - 6)$ $\qquad [D(f) = (2, 4\rangle - \{3\}]$