

Vy'sledky maturitních úloh 1-50

1) $\{2; 4\}$

2) $\varphi = 53^\circ 04'$

3) $x \in (-1; 1)$

4) $\frac{3\sqrt{38}}{2}$

5) $3(x-1)(x+\frac{1}{3})$

6) $[1; 2; -1]$

7) $AB; \nabla ABX; \perp AA; C \in \perp \cap \vec{BX}$

8) $x = 8$

9) $\bar{x} = \text{med}(x) = \text{mod}(x) = 12$

10) $m = \pm 2$

11) $x \in (-\frac{1}{2}; 2)$

12) $V = 0,52 \text{ m}^3$

13) $v = 2 \cdot \sqrt{3} \text{ cm}$

14) $x \in (-\infty; -2) \cup (2; +\infty)$

15) $\frac{(x+3)^2}{25} + \frac{(y-2)^2}{9} = 1$

16) $f^{-1}: y = \frac{1}{2}x + \frac{1}{2}; \left. \begin{matrix} R_x [1/2; 0] \\ R_y [0; -1] \end{matrix} \right\} f \text{ - roztouca}$ $\left. \begin{matrix} R_x [-1; 0] \\ R_y [0; 1/2] \end{matrix} \right\} f^{-1} \text{ - roztouca}$

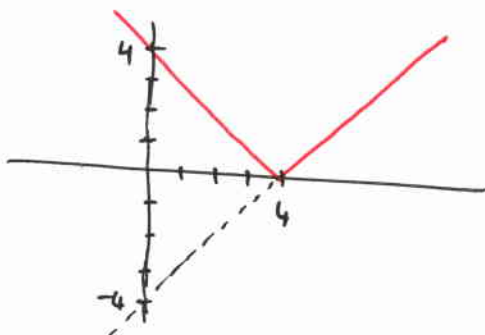
17) roztouca na $x \in (\frac{1}{3}; +\infty)$ ústavní: $x \in (-\infty; \frac{1}{3})$ minimum v $[\frac{1}{3}; -\frac{4}{3}]$
 $y' = 6x - 2$ $y'' = 6$

18) $S[4; 3]$ hyperbola $R_x [\frac{14}{3}; 0]$ $R_y [0; \frac{4}{2}]$

19) $\frac{(x-4)^2}{1} - \frac{(y-3)^2}{3} = 1$

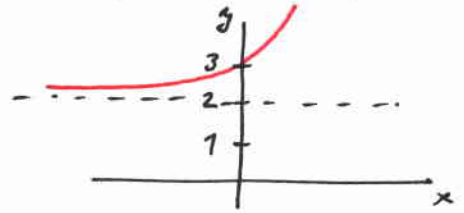
20) $y_1 = -x + 4$

$y_2 = x - 4$



21) $y^2 - 2y - 4x - 7 = 0$

22) $D_f = \mathbb{R}$ $H_f = (2; +\infty)$
 $R_y [0; 3]$ $R_x \dots$ minimum



23) $c = \pm 5 \cdot \sqrt{2}$

25) $1; x \neq 0, y \neq 0, x \neq \pm y$

24) $x = 3$

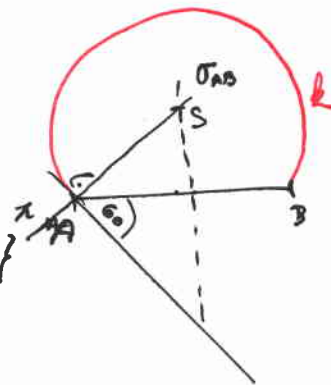
$$26) \beta = 48^\circ 35' \quad \mu = 101^\circ 24' \quad c = 7,84 \text{ cm}$$

$$27) R = \sqrt{2} \left(\cos \frac{\pi}{4} + i \sin \frac{\pi}{4} \right)$$

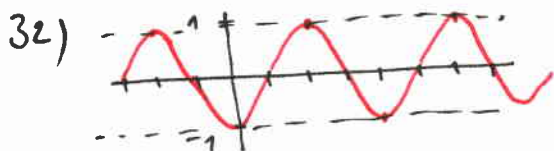
$$28) 2a^2 - 2a - 24 = 0 \quad a = 4 \quad b = 3$$

$$29) -2^6$$

$$30) AB; \angle 60; \sigma_{AB}; r \perp AX; S; k = \{x; \angle AXB = 60^\circ\}$$



$$31) (x+1)^5 = x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$$



$$33) \omega = \frac{1}{3} - 2i$$

$$34) \frac{n}{n+1} + \frac{1}{(n+1)(n+2)} = \frac{n+1}{n+2} \Rightarrow \frac{(n+1)^2}{(n+1)(n+2)} = \frac{n+1}{n+2} \Rightarrow \frac{n+1}{n+2} = \frac{n+1}{n+2} \quad \text{c.b.d.}$$

$$35) k_0 = \sqrt[3]{\sqrt{2}} \left(\cos \frac{\pi}{12} + i \sin \frac{\pi}{12} \right); k_1 = \sqrt[3]{\sqrt{2}} \left(\cos \frac{9\pi}{12} + i \sin \frac{9\pi}{12} \right); k_2 = \sqrt[3]{\sqrt{2}} \left(\cos \frac{17\pi}{12} + i \sin \frac{17\pi}{12} \right)$$

$$36) x_1 = \frac{3}{4}\pi + k\pi; \quad x_2 = \frac{13}{12}\pi + k\pi$$

$$37) v = \frac{ds}{dt} = s' = 4 - t$$

$$38) \frac{2}{3}$$

$$39) q = \frac{1}{2} a_1 = 8; \quad q = -\frac{1}{2} a_1 = -8$$

$$40) \rho = 4$$

$$41) y' = 15x^4 + 6x^2 - 4 \quad y'' = 60x^3 + 12x$$

$$42) y' = 15x^2 - \cos x$$

$$43) y' = \frac{2(4-x^2)}{(x^2+4)^2}$$

$$44) y' = 16x \cdot \sin^3 2x^2 \cdot \cos 2x^2$$

$$45) \frac{x^3}{3} - \frac{3}{2}x^2 + x + c$$

$$46) 2$$

$$47) \ln|2x^2+1| + c$$

$$48) [0; 0]$$

$$49) (y-4) = 8(x-1) \quad \text{ub o} \\ y = 8x - 4$$

$$50) \lim_{x \rightarrow 0} \frac{\cos x}{1} = 1$$