Rovnice, nerovnice

2. cvičení

Matematika 1, NMMA701, Ondřej Bouchala

Výsledky:

1. a) $x \in (4, 6]$

   b) $x \in \left(\frac{-1-\sqrt{13}}{2}, \frac{-1+\sqrt{13}}{2}\right) \cup (-6, -3)$

   c) $x \in \left(-\infty, \frac{1-\sqrt{5}}{2}\right) \cup \left(\frac{1+\sqrt{5}}{2}, \infty\right)$

   d) $x \in \mathbb{R}$

   e) $x \in [1, 2]$

2. $x \in \{9, 27\}$

3. a) $a \in \{0, 1\},\ x \in \mathbb{R}$, nebo
   $a \in (0, 1),\ x > \frac{2^{57\,885\,161}-1}{a(a-1)}$, nebo
   $a \in (-\infty, 0) \cup (1, \infty),\ x < \frac{2^{57\,885\,161}-1}{a(a-1)}$.

   b) $a < 0,\ x \in (0, -a)$, nebo
   $a > 0, x \in (-a, 0)$.

   c) $a \neq \frac{1}{2}, x = \frac{1-a}{1-2a}$

   d) $a = 2,\ x \in \mathbb{R} \setminus \{0\}$, nebo
   $a \in \mathbb{R} \setminus \{-2, 0\},\ x = a + 2$.

   e) $x = a + 4 \pm \sqrt{2}\sqrt{a+8}$

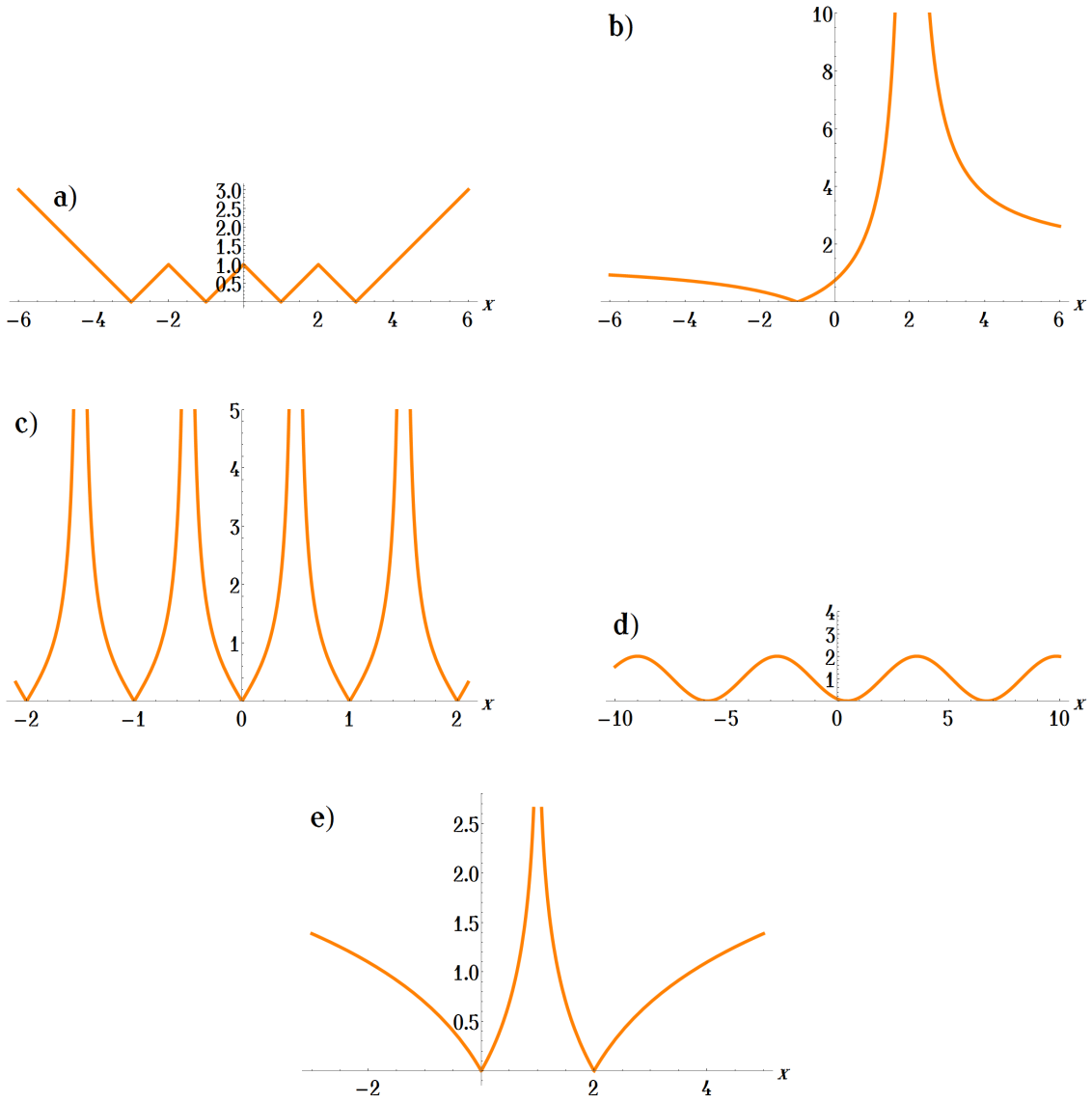
   f) $x \leq -\frac{1}{2}$

4. $a < 0,\ x \in \left(\frac{1}{a}, 0\right] \cup \left[-\frac{2}{a}, -\frac{3}{a}\right)$, nebo
   $a = 0,\ x \in \mathbb{R}$, nebo
   $a > 0,\ x \in \left(-\frac{3}{a}, -\frac{2}{a}\right] \cup \left(0, \frac{1}{a}\right)$.

5. $(-\infty, -4)$

6. $x \in \left(e^{-\frac{\pi}{2}-c}, e^{\frac{\pi}{2}-c}\right) \cup \left(-e^{\frac{\pi}{2}-c}, -e^{-\frac{\pi}{2}-c}\right)$

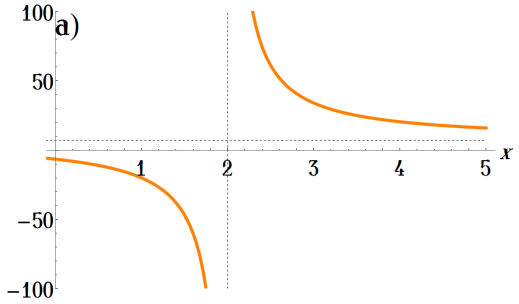
7.

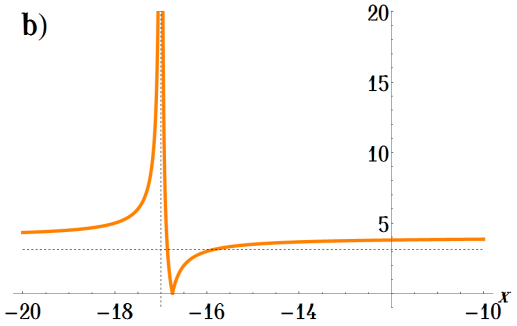


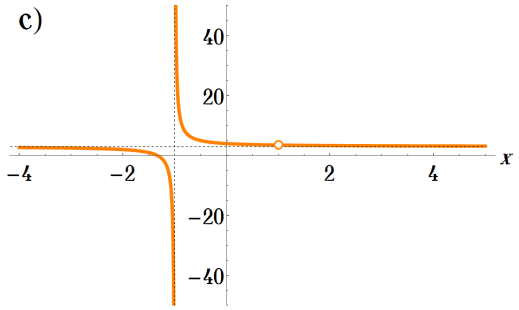
8. 8

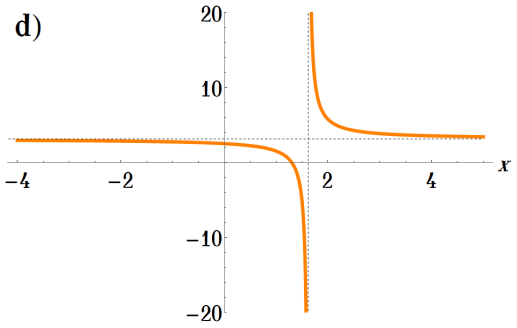
α. $x = 6$ a $x = 7^{-13} - 1$.

β.


a)
100
50
−50
−100
1
2
3
4
5
x


b)
20
15
10
5
−20
−18
−16
−14
−10
x


c)
40
20
−20
−40
−4
−2
2
4
x


d)
20
10
−10
−20
−4
−2
2
4
x