

I. Pojem funkce

- 1) Rozhodněte, která z množin je funkcí:

$$M_1 = \{[1,4], [-2,2], [6,5], [8,0]\}$$

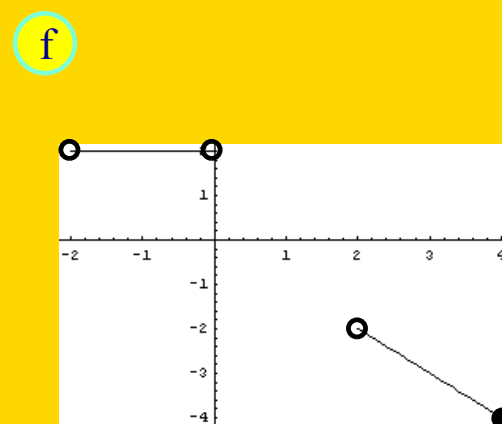
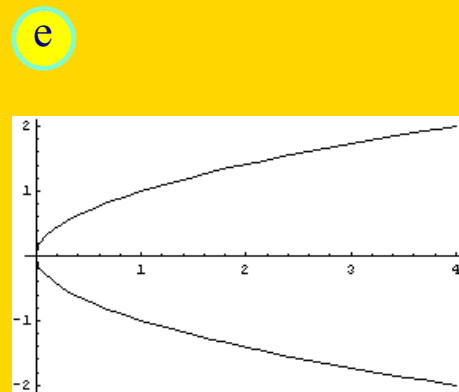
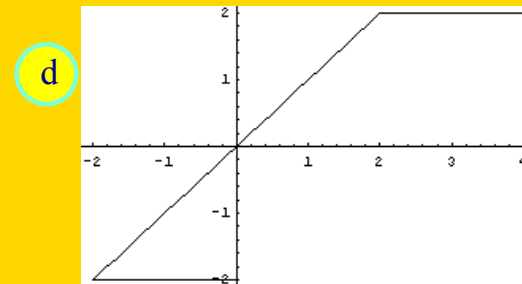
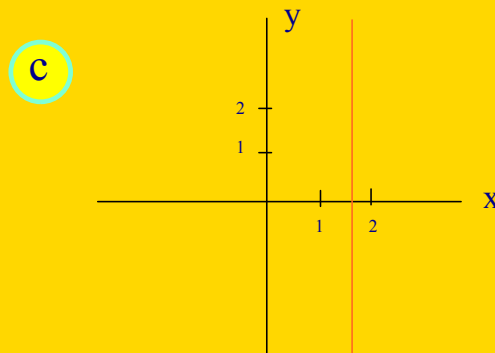
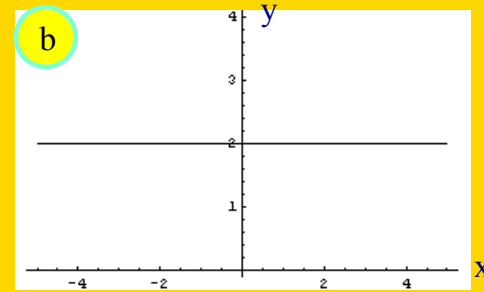
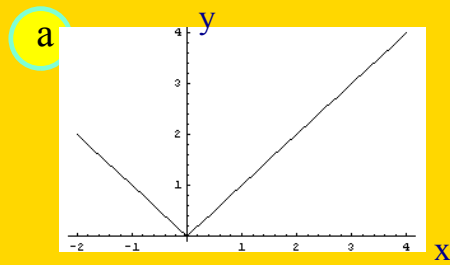
$$M_2 = \{[1,4], [-2,2], [-2,-2], [8,0]\}$$

- 2) Je dána množina M uspořádaných dvojic. Vytvořte z prvků množiny M aspoň dvě množiny, které a) jsou
b) nejsou funkcemi

$$M = \{[0,2] [1,2] [-1,3] [-3,-2] [3,-2] [-1,-2] [1,-1][3,2]\}$$

- 3) Napište pět uspořádaných dvojic, které patří funkci zadané rovnicí: $y = \sqrt{x}$

4) Rozhodněte, který z obrázků je grafem funkce:



II. Definiční obor funkce

1) Určete definiční obor funkce:

$$\underset{1}{f}: y = 2x - 1$$

$$\underset{5}{f}: y = x + 8$$

$$\underset{2}{f}: y = \frac{1}{2x - 1}$$

$$\underset{6}{f}: y = \frac{1}{x + 8}$$

$$\underset{3}{f}: y = \sqrt{2x - 1}$$

$$\underset{7}{f}: y = \sqrt{x + 8}$$

$$\underset{4}{f}: y = \frac{1}{\sqrt{2x - 1}}$$

$$\underset{8}{f}: y = \frac{1}{\sqrt{x + 8}}$$

2) Určete definiční obor funkce:

$$g_1: y = x^2 - 1$$

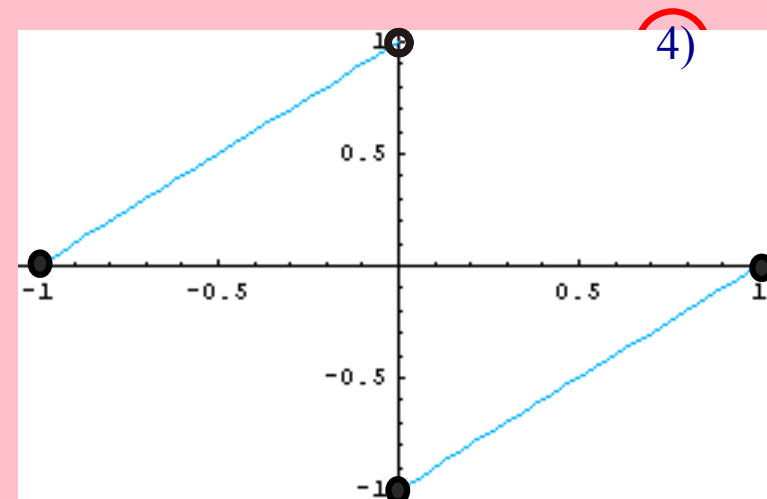
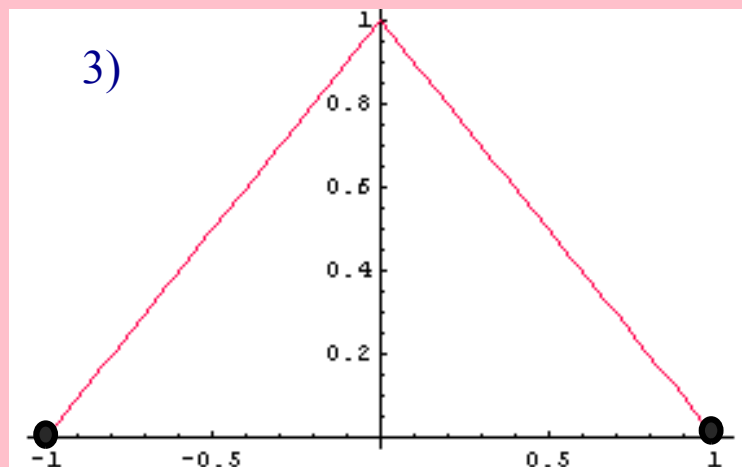
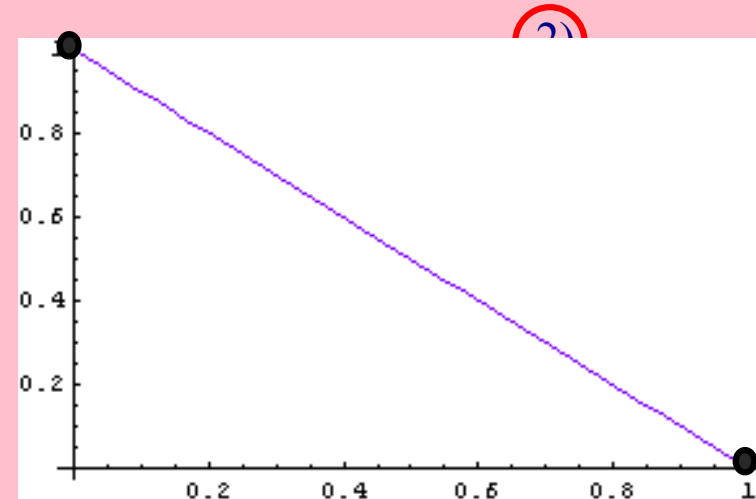
$$g_2: y = \frac{1}{x^2 - 1}$$

$$g_3: y = \sqrt{x^2 - 1}$$

$$g_4: y = \frac{1}{\sqrt{x^2 - 1}}$$

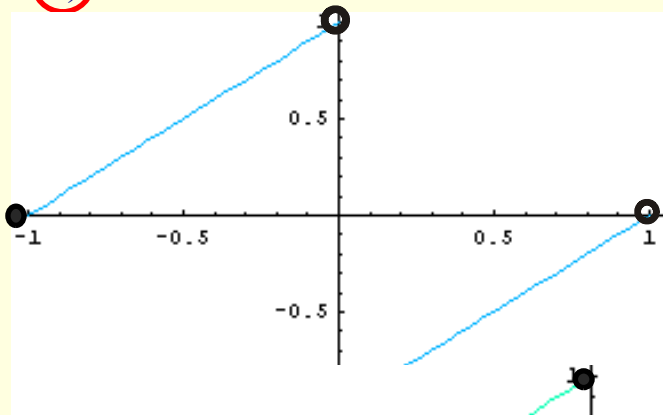
III. Vlastnosti funkcí

Určete základní vlastnosti funkcí na obrázcích tj. $D(f)$, $H(f)$, monotonii, zda je fce prostá

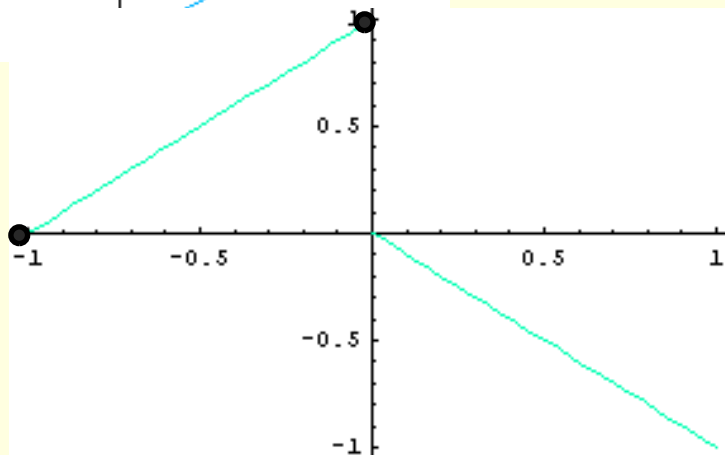


Určete základní vlastnosti funkcí na obrázcích tj. $D(f)$, $H(f)$, monotonii, zda je fce prostá

5)



6)

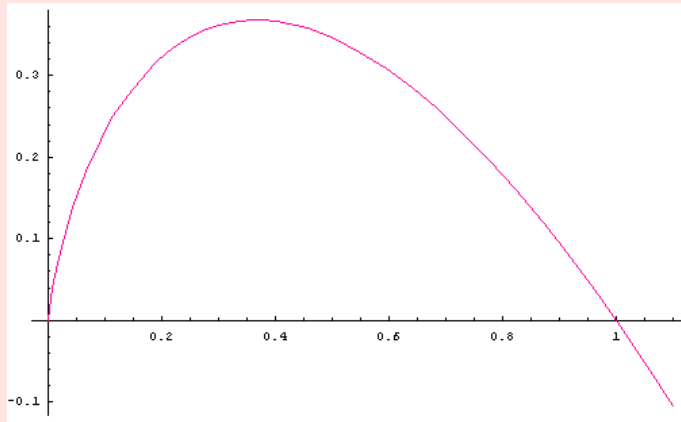


V úlohách 3 - 6 určete intervaly, v nichž je funkce rostoucí resp. klesající

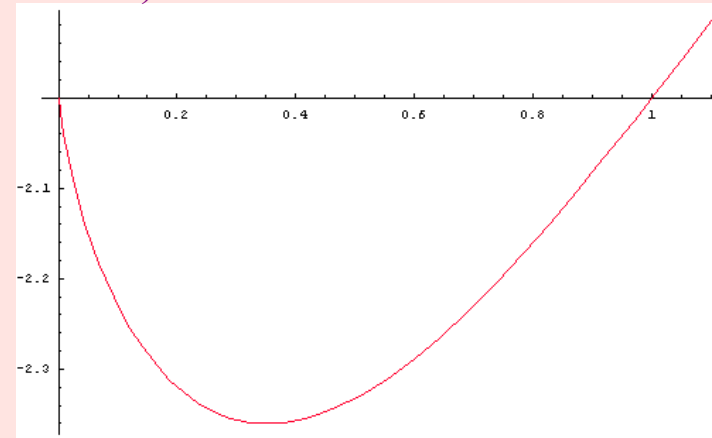
Určete všechny vlastnosti funkcí na obrázcích

$D(f)$, $H(f)$, monotonii, periodičnost, omezenost, sudost, lichost

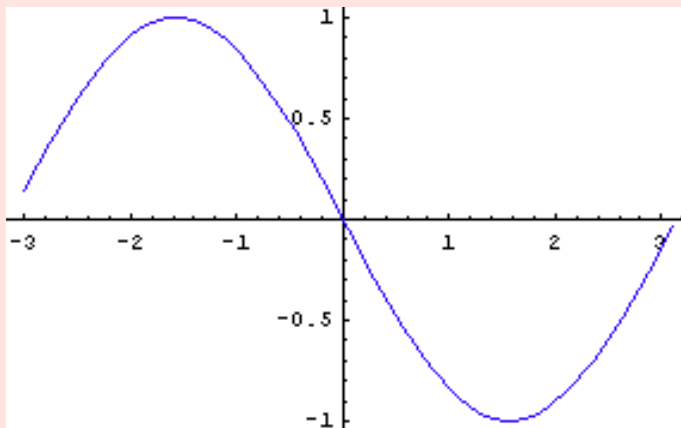
a)



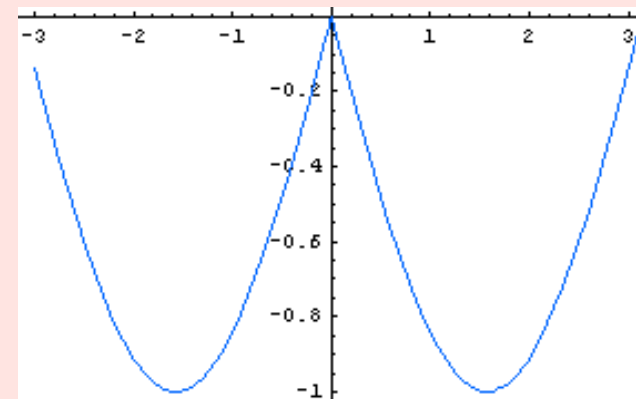
b)



c)



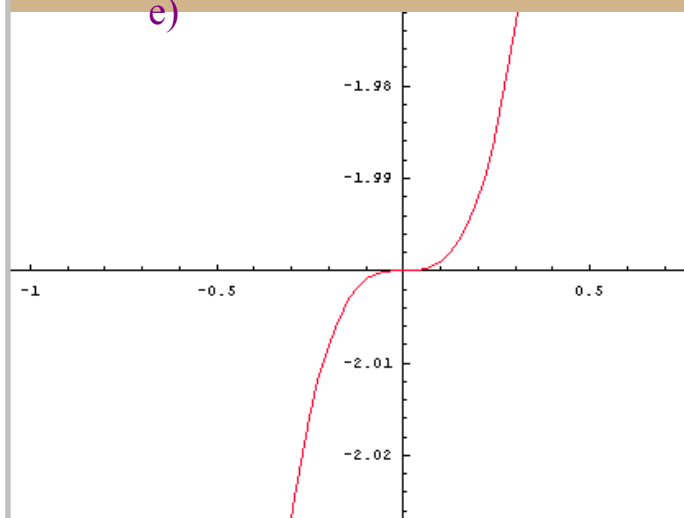
d)



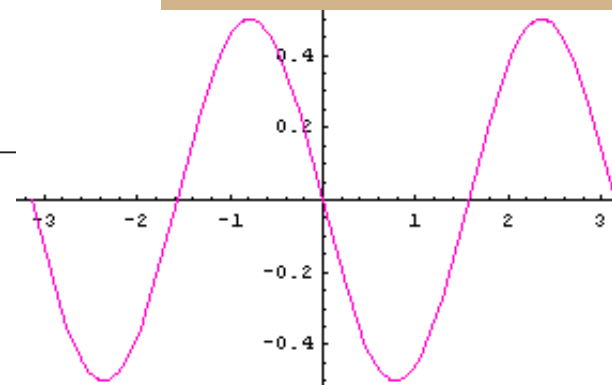
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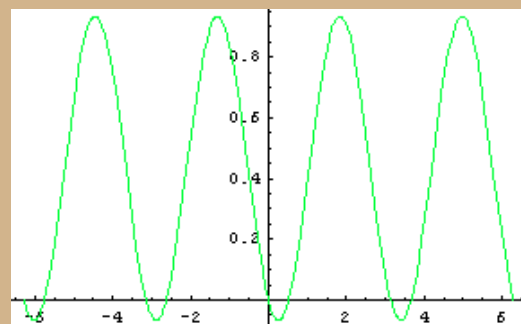
e)



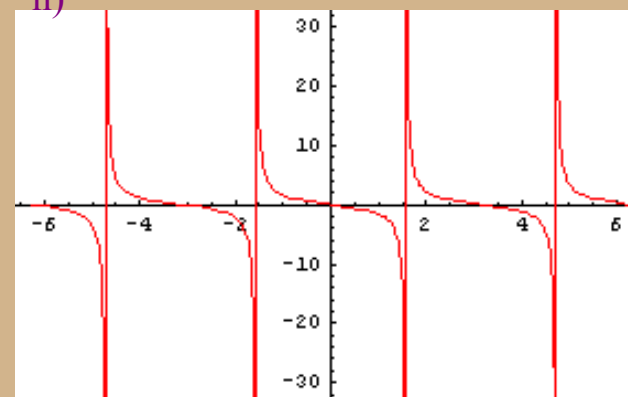
f)



g)

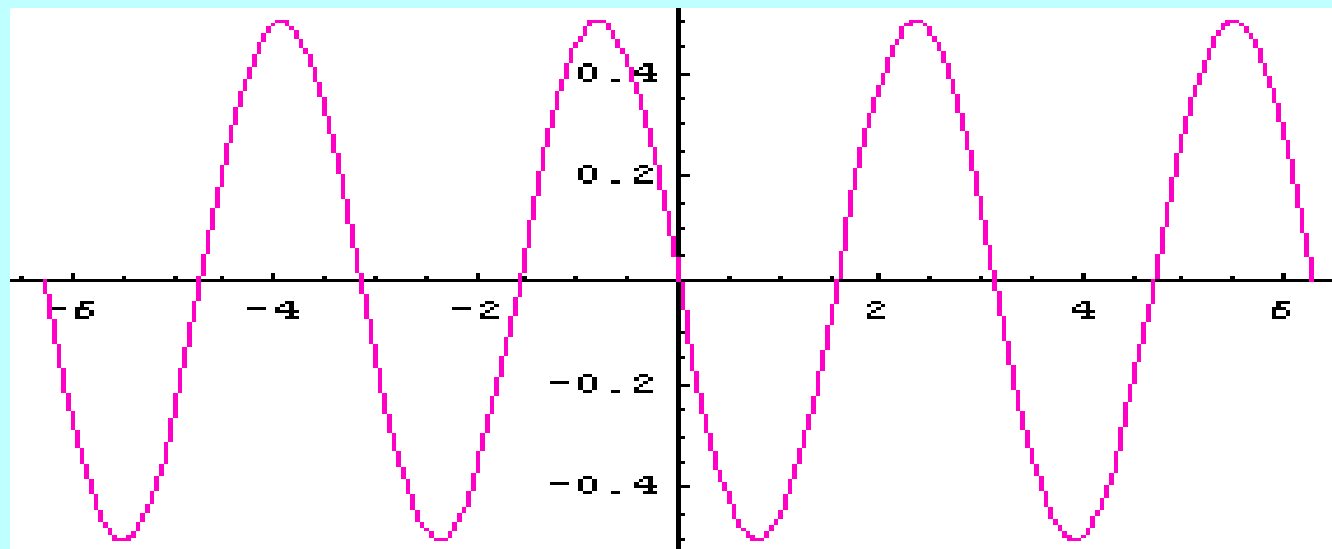


h)

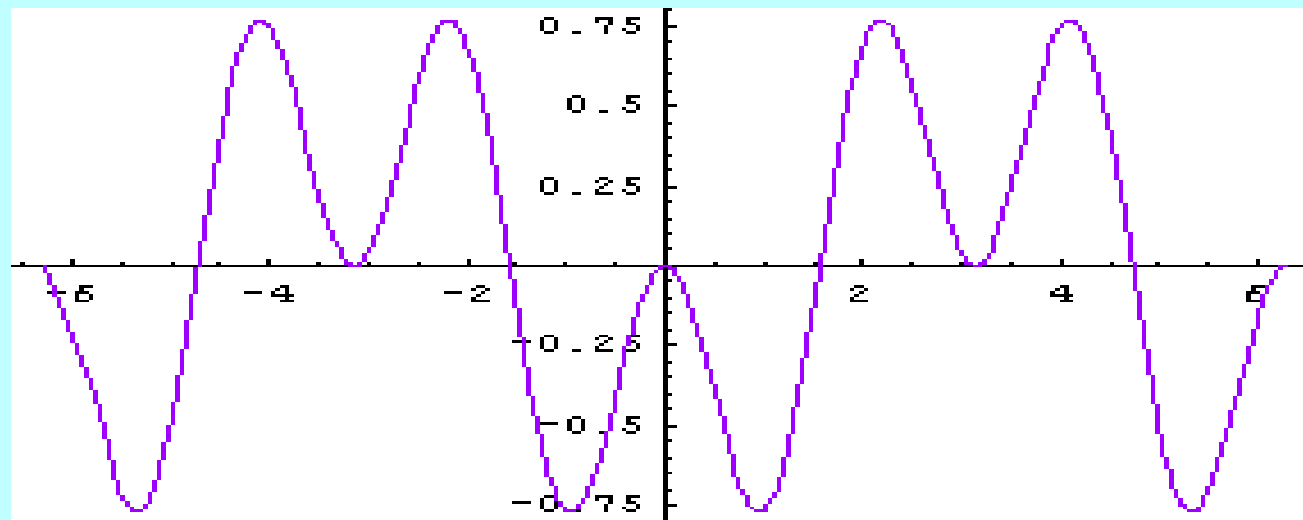


Určete všechny vlastnosti fcí:

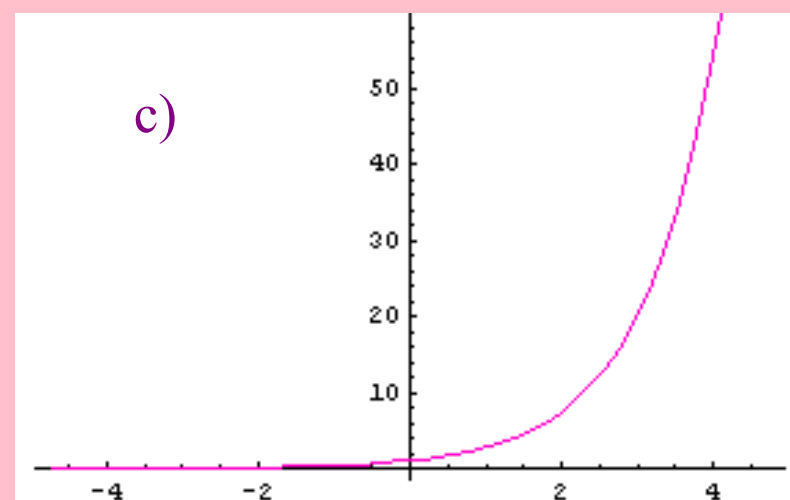
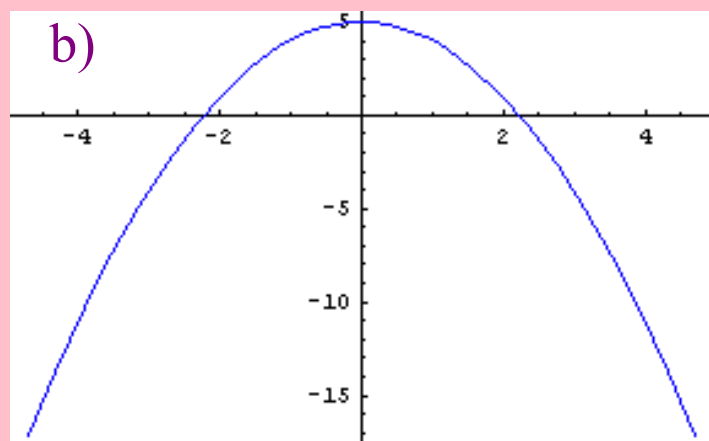
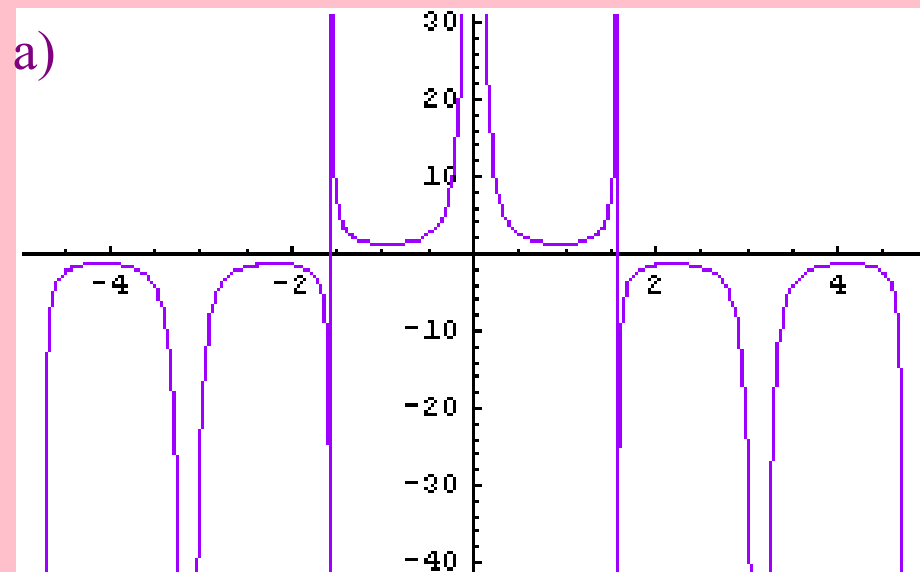
1)



2)



Určete všechny vlastnosti fcí:

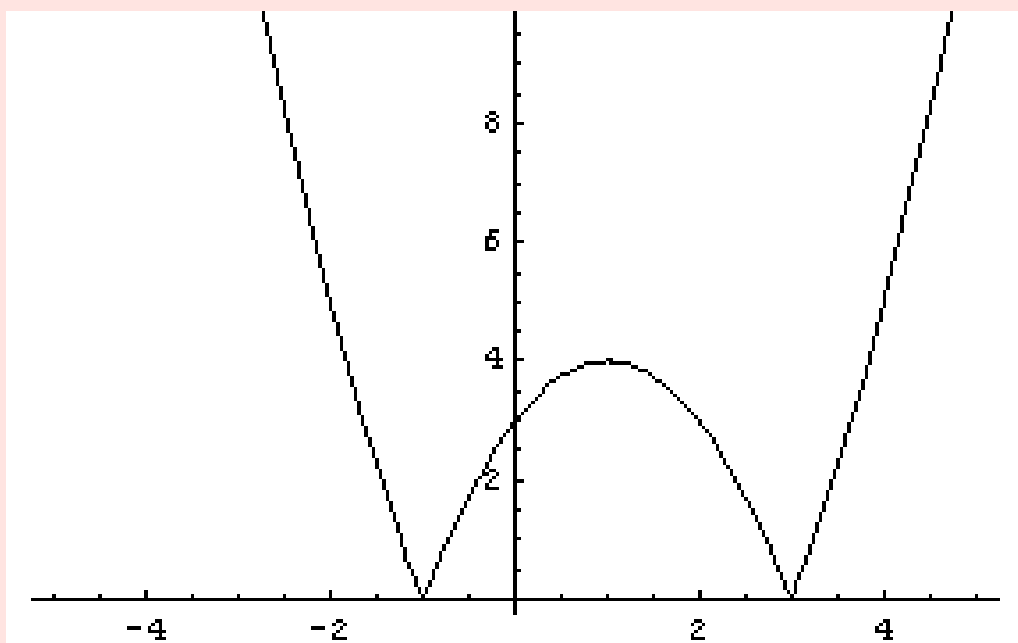
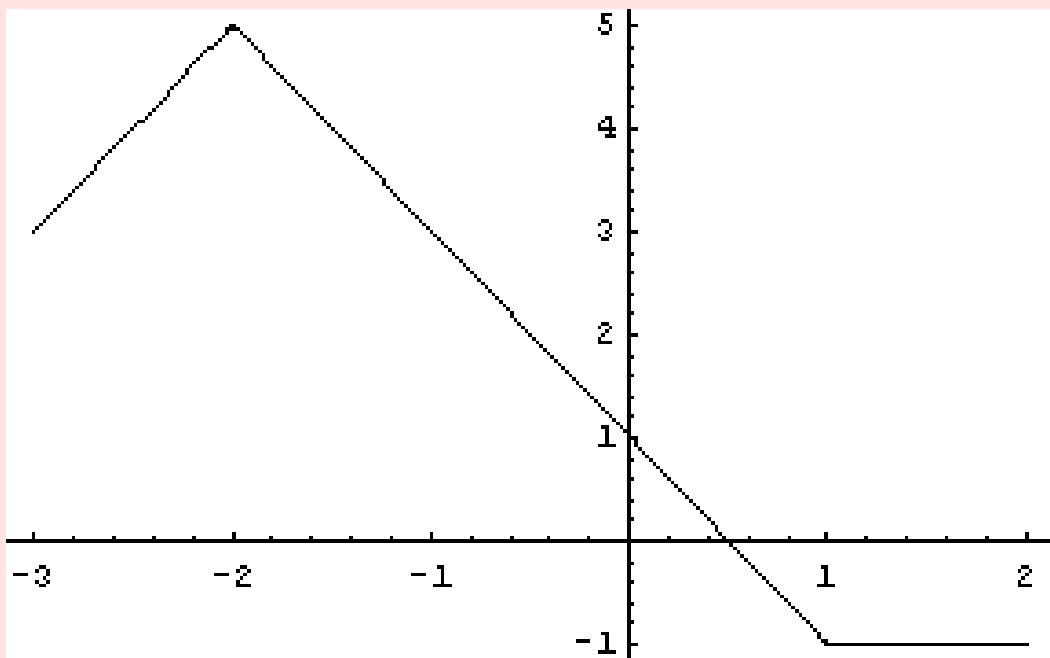


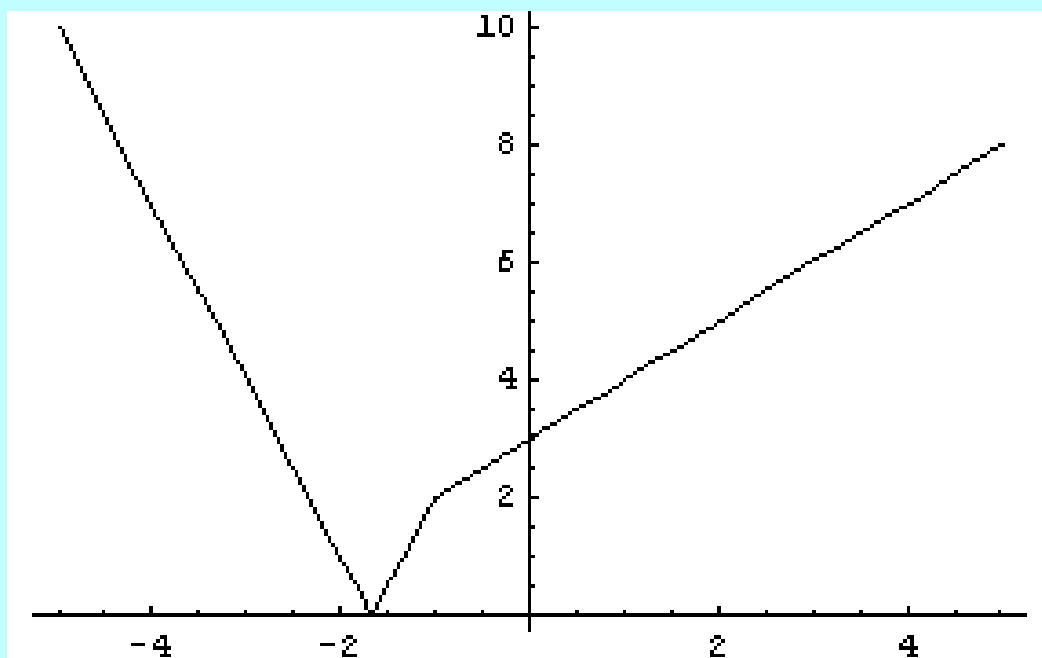
Zakreslete graf funkce, určete všechny její vlastnosti
(můžete využít i program Mathematica)

$$x + |x - 1| - 2|x + 2| + 4 \quad x \in (-3, 2)$$

$$y = |x^2 - 2x - 3|$$

$$y = |-2x + |x + 1| - 4|$$





Určete vlastnosti funkcí

