1. K nasledujúcim lineárnym funkciám nakreslite graf a určte:
    - definičný obor,
    - obor hodnôt,
    - hodnotu funkcie pre $x = -2$ a $x = 8$,
    - priesečník s osou o_y,
    - priesečník s osou o_x,
    - či je rastúca, či klesajúca
        a) $y = 4x$
        b) $y = -2x+5$
        c) $y = 5x-9$
        d) $y = 4x+1$
        e) $y = -3x-6$

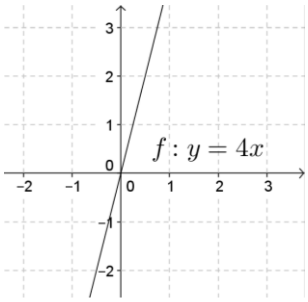
2. K nasledujúcim funkciám nakreslite graf a určte:
    - definičný obor,
    - obor hodnôt,
    - hodnotu funkcie pre $x = 5$,
    - priesečník s osou o_y,
    - priesečníky s osou o_x,
    - minimum funkcie,
    - maximum funkcie
    - kde klesá a kde rastie
        a) $y = |x - 1| + 5$
        b) $y = 4|x + 1| - 3$
        c) $y = -|2x + 4| - 3$
        d) $y = |x + 4| - 2x$
        e) $y = -3|x - 1| + 4x$

3. Pre kvadratické funkcie dané predpisom nakreslite graf a určte:
    - priesečníky s osou o_x,
    - vrchol grafu funkcie,
    - priesečník s osou o_y,
    - definičný obor,
    - obor hodnôt H(f),
    - interval, na ktorom je funkcia rastúca a na ktorom je klesajúca.
        a) f: $y = 2x^2 - 4x – 6$
        b) f: $y = -2x^2 - 16x – 30$
        c) f: $y = x^2 + 2x – 3$
        d) f: $y = x^2 - 7x + 6$
        e) f: $y = -4x^2 + 16x – 12$

Výsledky:

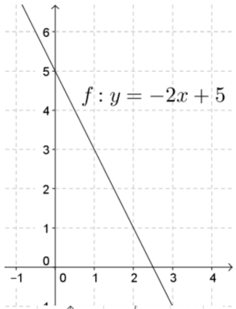
1.

a)



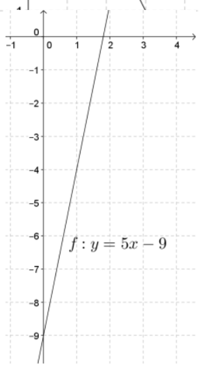
- D(f) = R
- H(f) = R
- f(-2) = -8, f(8) = 32
- [0,0]
- [0,0]
- je rastúca

b)



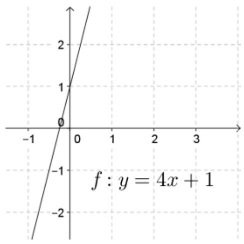
- D(f) = R
- H(f) = R
- f(-2) = 9, f(8) = -11
- [5/2,0]
- [0,5]
- je klesajúca

c)



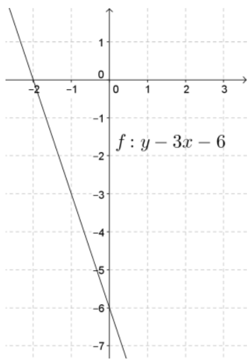
- D(f) = R
- H(f) = R
- f(-2) = -19, f(8) = 31
- [5/9,0]
- [0,-9]
- je rastúca

d)



- D(f) = R
- H(f) = R
- f(-2) = -7, f(8) = 33
- [-1/4,0]
- [0,1]
- je rastúca

e)

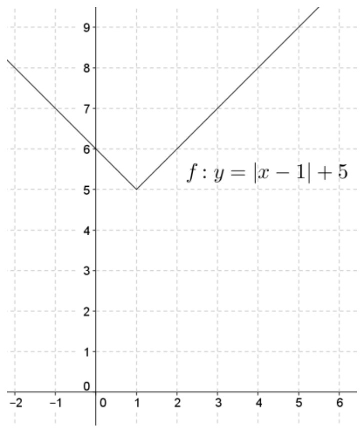


- D(f) = R
- H(f) = R
- f(-2) = 0, f(8) = -30
- [-2,0]
- [0,- 6]
- je klesajúca

2.

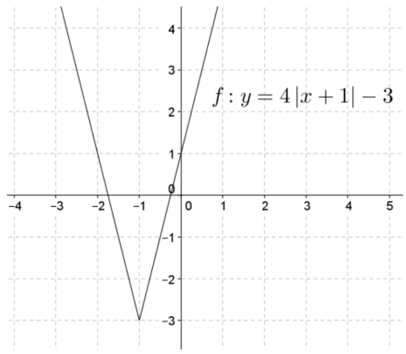
a)

- D(f) = R
- H(f) = ⟨5, ∞)
- f(5) = 9
- nemá
- [0, 6]
- minimum nadobúda pre x = 1
- maximum nemá
- klesá na (-∞, 1⟩; rastie na ⟨1, ∞)



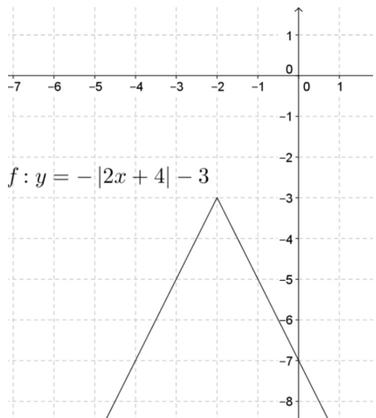
b)

- D(f) = R
- H(f) = ⟨-3, ∞)
- f(5) = 21
- [-7/4, 0], [-1/4, 0]
- [0, 1]
- minimum nadobúda pre x = -1
- maximum nemá



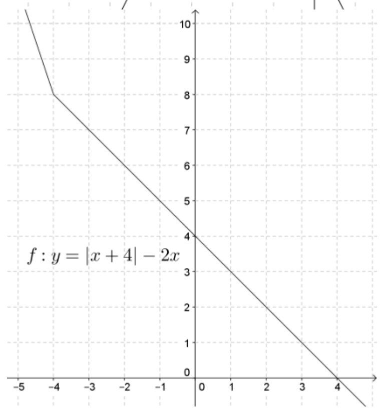
c)

- klesá na (-∞, -1⟩; rastie na ⟨-1, ∞)
- D(f) = R
- H(f) = (-∞, -3⟩
- f(5) = -17
- nemá
- [0, -7]
- minimum nemá
- maximum nadobúda pre x = -2
- klesá na ⟨-2, ∞); rastie na (-∞, -2⟩;

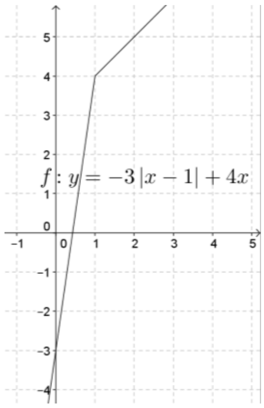


d)

- D(f) = R
- H(f) = R
- f(5) = -1
- [4, 0]
- [0, 4]
- minimum nemá
- maximum nemá
- klesá na (-∞, ∞); rastie nikde



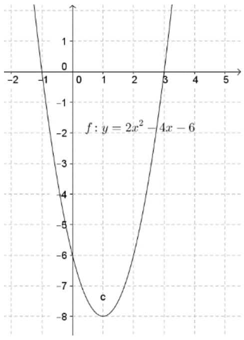
e)



- D(f) = R
- H(f) = R
- f(5) = 8
- [3/7, 0]
- [0, -3]
- minimum nemá
- maximum nemá
- klesá nikde; rastie na (-∞, ∞)

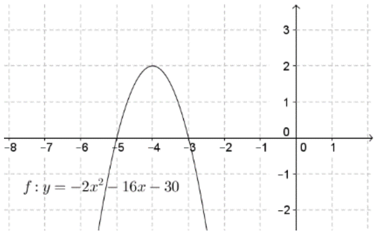
3.

a)



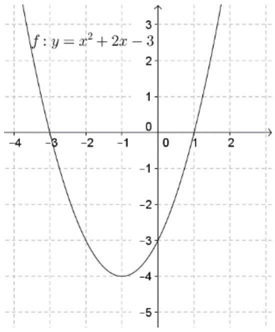
- [-1,0], [3,0]
- [1,-8]
- [0,-6]
- D(f) = R
- H(f) = ⟨-8,∞)
- klesá na (-∞,1⟩, rastie na ⟨1,∞)

b)



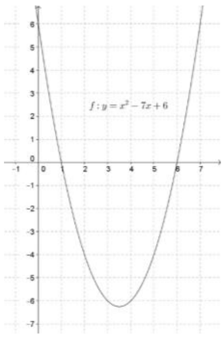
- [-5,0], [-3,0]
- [-4,2]
- [0,-30]
- D(f) = R
- H(f) = (-∞,2⟩
- klesá na⟨-4,∞), rastie na (-∞,-4⟩

c)



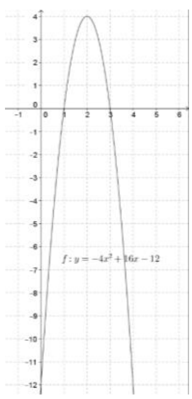
- [-3,0], [1,0]
- [-1,4]
- [0,-3]
- D(f) = R
- H(f) = ⟨-4,∞)
- klesá na(-∞,-1⟩, rastie na ⟨-1,∞).

d)



- [1,0], [6,0]
- [-25/4,7/2]
- [0,6]
- D(f) = R
- H(f) = ⟨-25/4,∞)
- klesá na(-∞,7/2⟩, rastie na ⟨7/2,∞)

e)



- [1,0], [3,0]
- [2,4]
- [0,-12]
- D(f) = R

- $H(f) = (-\infty,4\rangle$
- klesá na $\langle 2,\infty)$, rastie na $(-\infty,2\rangle$.