Pojem funkce:

Funkce se nazývá zobrazení libovolné podmnožiny reálných čísel do množiny reálných čísel.

$$[x; y] \in MxR$$

Ke každému $x \in M$ existuje $y \in R$ tak, že

$$[x; y] \in f$$

Definiční obor funkce f je množina všech x, které můžeme do funkčního předpisu dosadit - D(f)

Obor hodnot funkce je množina všech y, ke kterým existuje alespoň jedno x z D(f) - značíme H(f)

Příklad č.1

Je dána funkce g ={[-3;0], [6;8], [-2;-1], [5;7]}

Určete definiční obor a obor hodnot této funkce

$$D(g) = \{-3, -2, 5, 6\}$$

$$H(g) = \{-1, 0, 7, 8\}$$

Příklad č.2

Je dána funkce: $h: y = \frac{x \cdot (x-3)}{2}, x \in R$

Urči, zda jsou správně sestaveny uspořádané dvojice:

Chybné dvojice vyškrtni.

[4;2], [5;5]; [6;9]; [1;-1]; [2;-1]; [1;0], [3;0], [8;2]

Funkci h nenáleží dvojice: [1;0], [8;2]

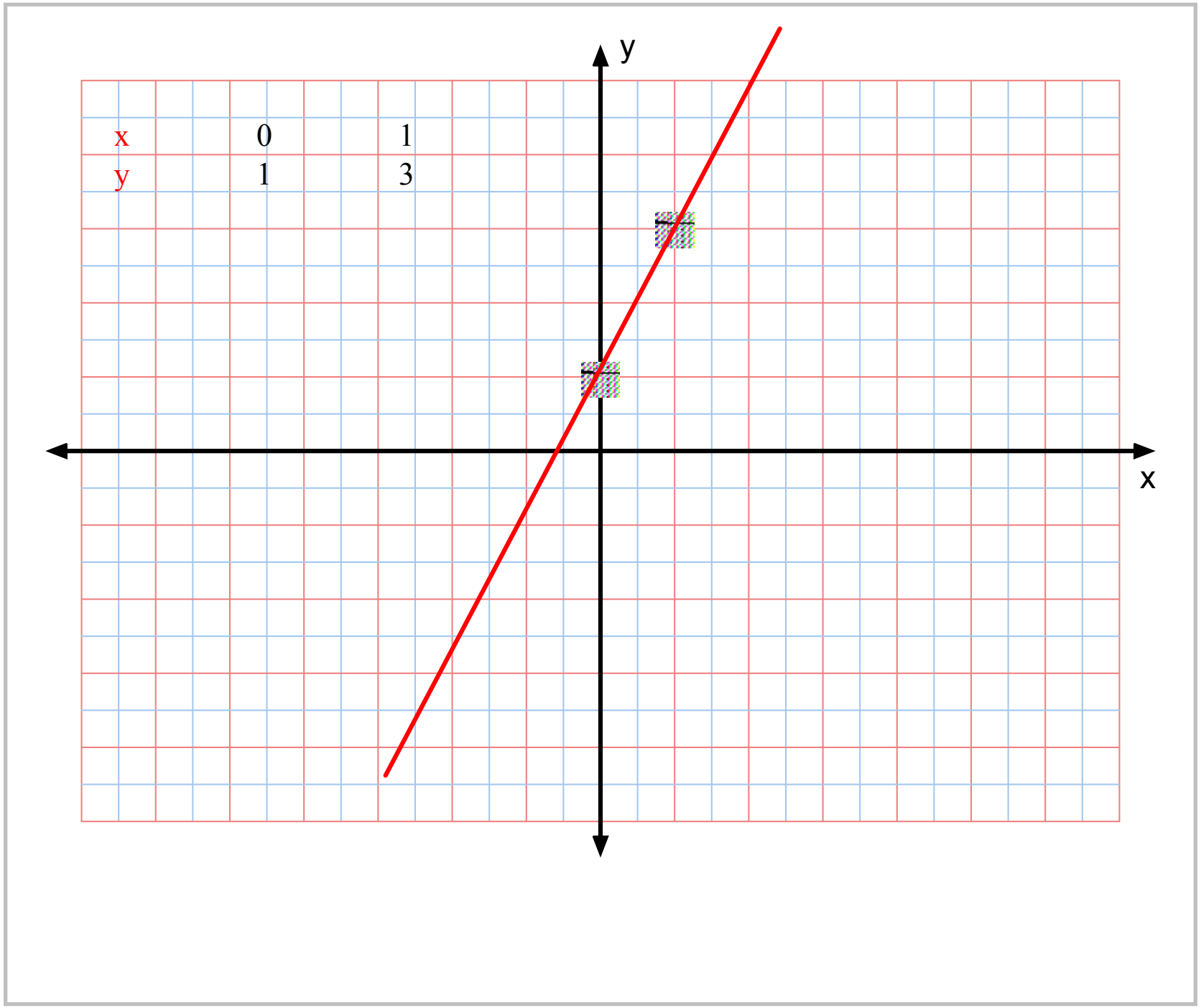
Lineární funkce

$$f : y = ax + b \qquad x \in R$$

$$a, b \in R; a \neq 0$$

Příklad č. 3

Sestrojte graf funkce y = 2x + 1 v oboru R.


x 0 1
y 1 3
y
x

Sestrojte grafy těchto lineárních funkcí v R
Určete obory funkčních hodnot - H

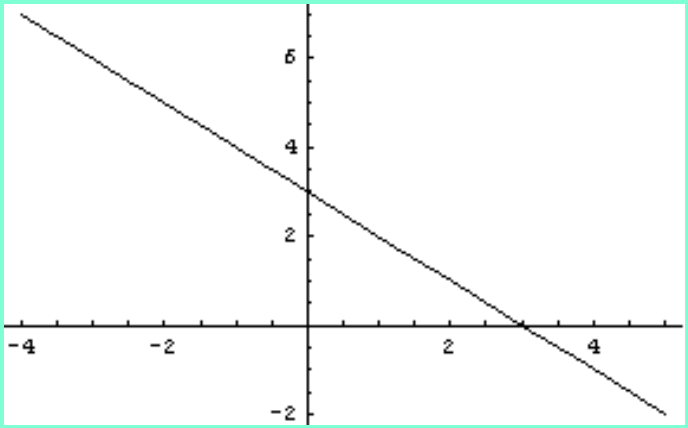
g: y = -x + 3

h: y = -2x-5

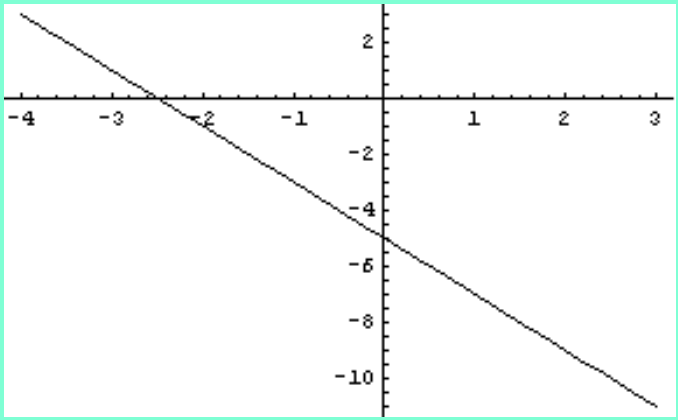
f: y = x

j: y = 3

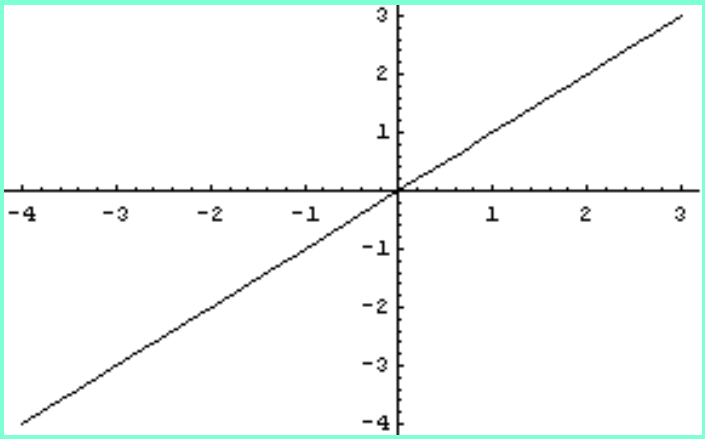
g: y = -x + 3



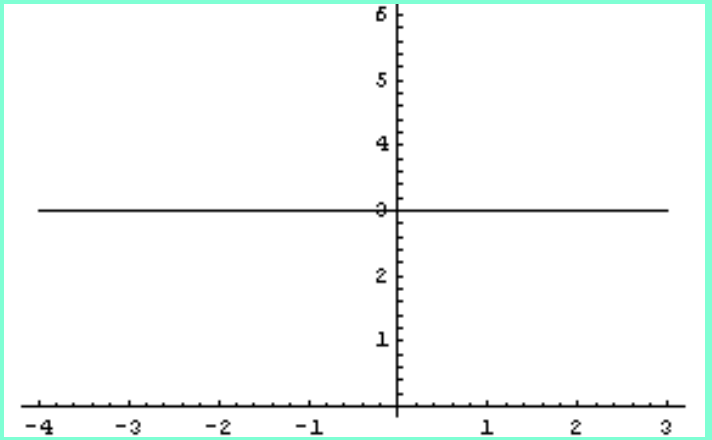
h: y = -2x-5



f: y = x



j: y = 3



Sestrojte grafy funkcí:

$f_1 : y = 2x + 1,\ x \in \langle -2, 4 \rangle$

$f_2 : y = -2x - 3,\ x \in \langle -3, 1 \rangle$

$f_3 : y = |x|$

$f_4 : y = |x - 2|$

$f_5 : y = |x + 2|$

$f_6 : y = |x + 2| - 4$

$f_7 : y = -|x + 2| + 2$

$f_8 : y = |x + 2| + x$

$f_9 : y = |x + 2| + 2 * x - 3$

$f_{10} : y = |x + 2| - x + 1$

$f_{11} : y = |x - 1| + 3x - 3$

$f_{12} : y = |x - 3| + 2x - 1$

$f_{13} : y = |x - 3| + |2x - 1|$

$f_{14} : y = |x - 1| + |3x + 2|$

$f_{15} : y = |x - 2| + |4x + 8| - x$

$f_{16} : y = |x - 2| - 2|x + 3| + 2x$

Najděte funkční předpis lineární funkce, která prochází body:

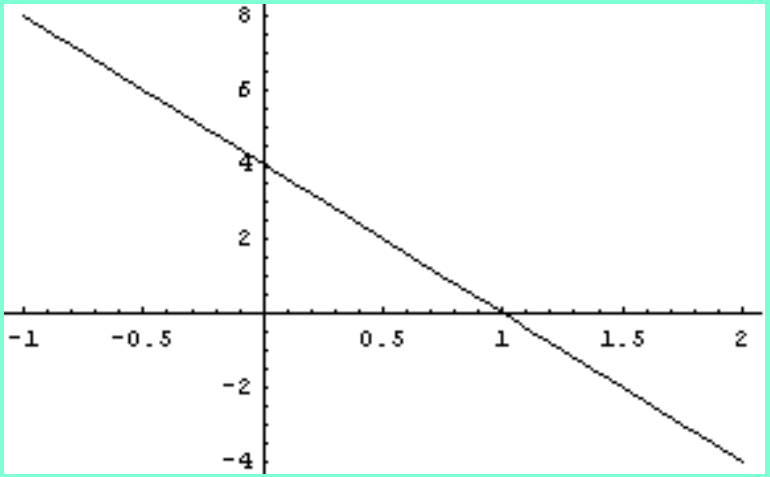
a) $A = [-2, 3],\ B = [1, 0]$

b) $A = [2, -4],\ B = [-4, 6]$

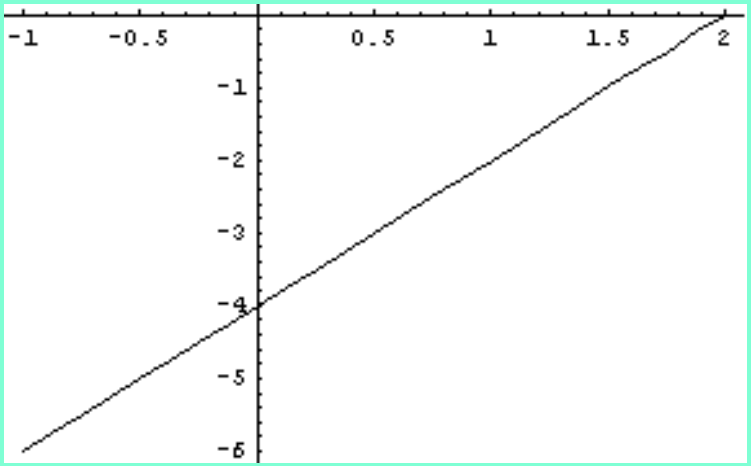
c) $A = [-2, -4],\ B = [0, 1]$

Najděte funkční předpis lineární funkce:

a)

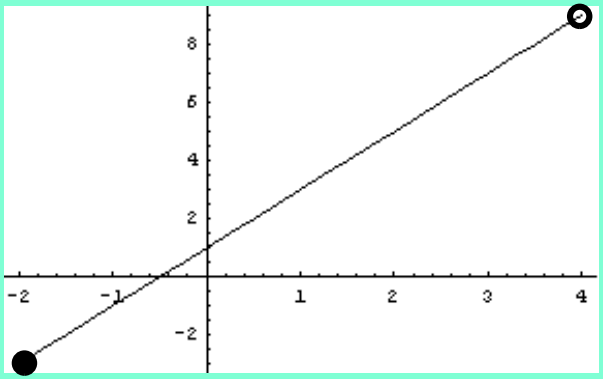


b)

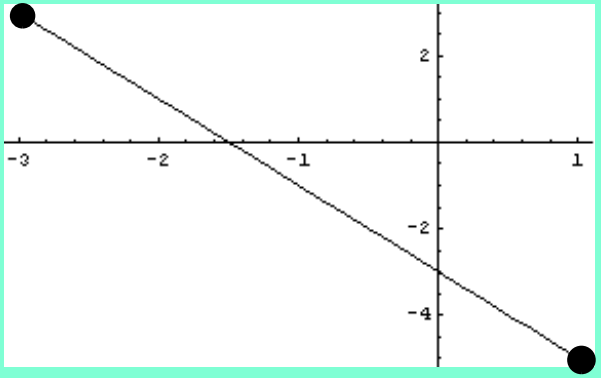


Výsledky:

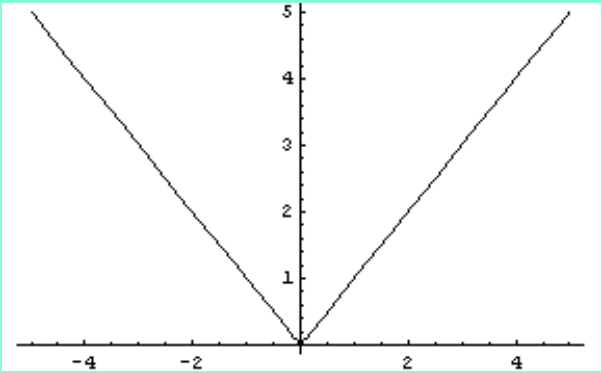
$f_1 : y = 2x + 1,\ x \in \langle -2, 4)$



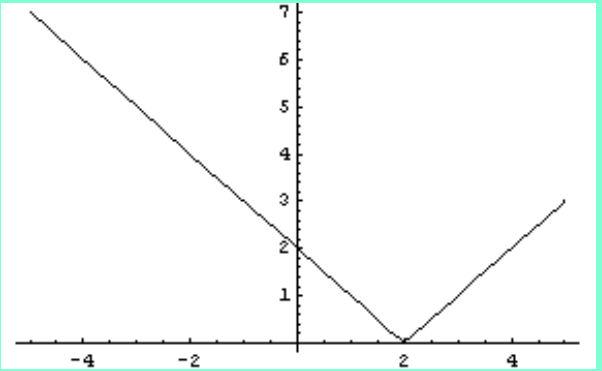
$f_2 : y = -2x - 3,\ x \in \langle -3, 1\rangle$



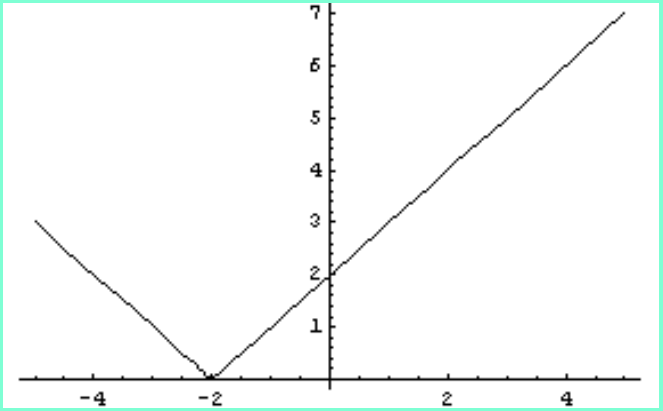
$f_3 : y = |x|$



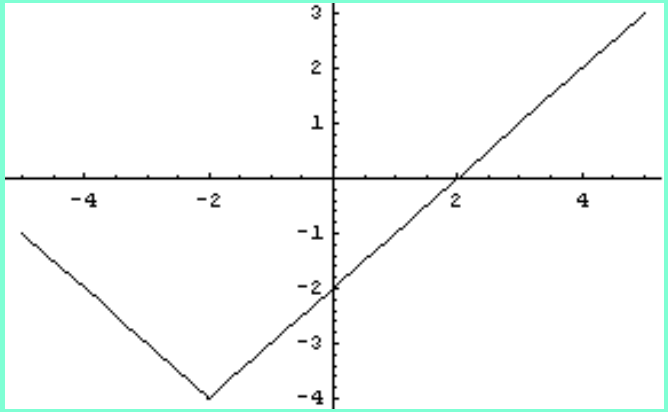
$f_4 : y = |x - 2|$



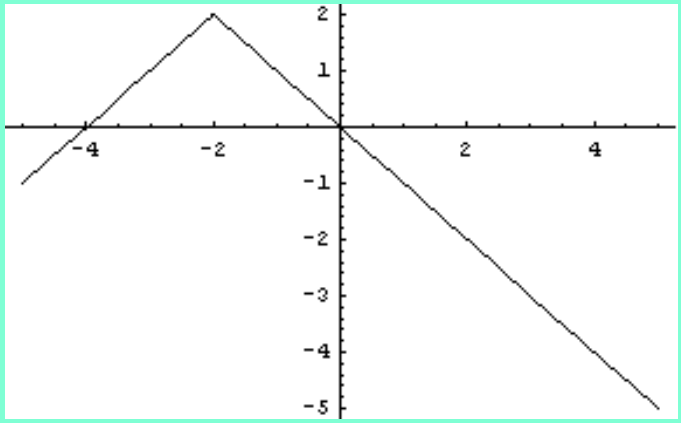
$f_5 : y = |x+2|$



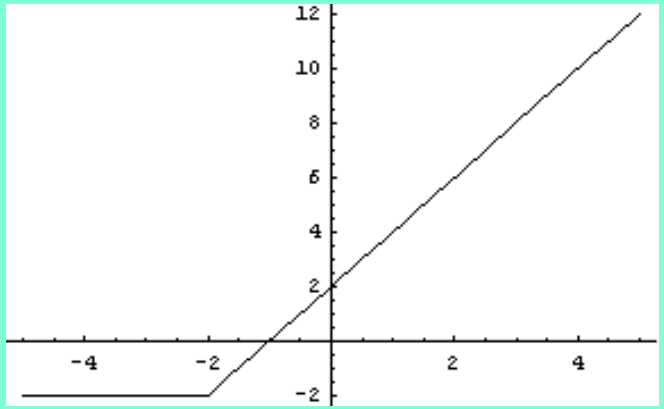
$f_6 : y = |x+2|-4$



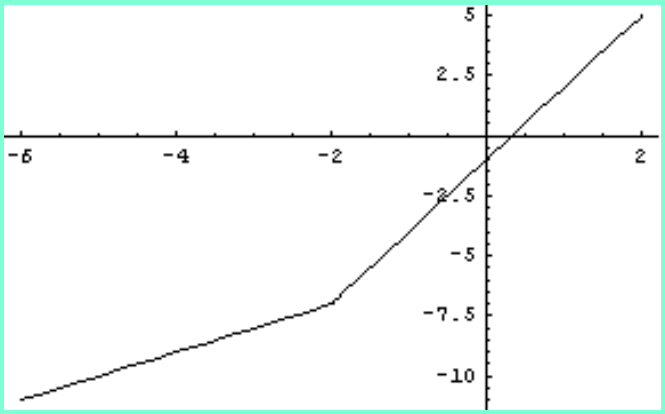
$f_7 : y = -|x+2|+2$



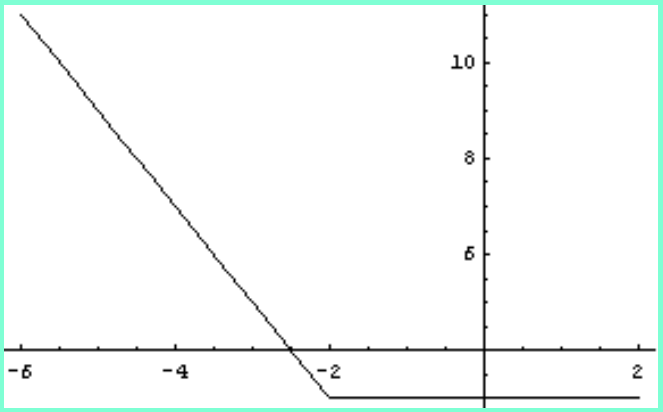
$f_8 : y = |x+2|+x$



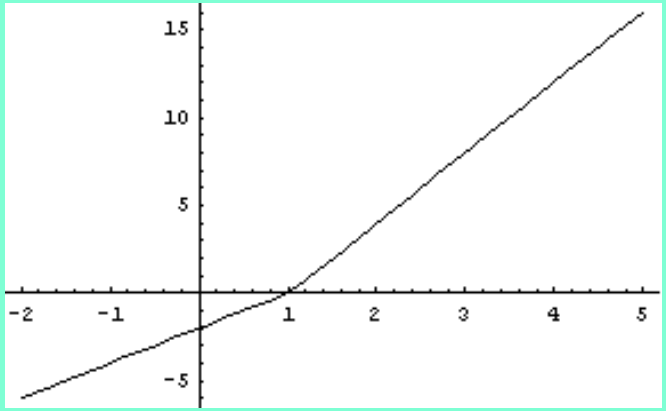
$f_9 : y = |x+2|+2*x-3$



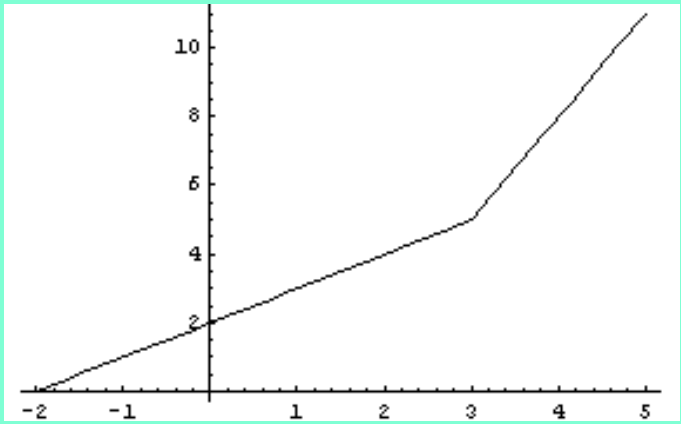
$f_{10} : y = |x+2|-x+1$



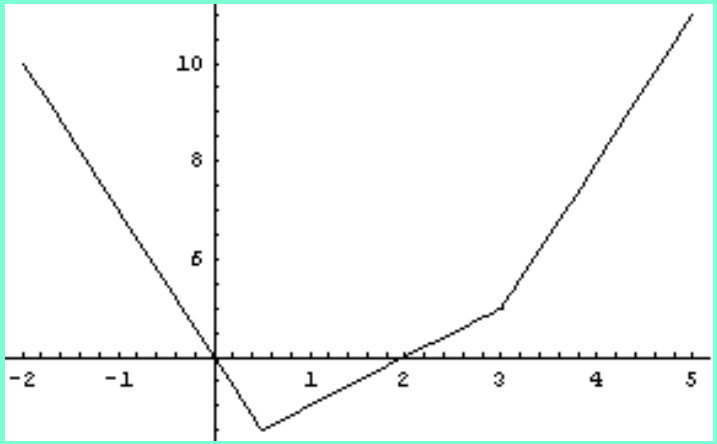
$f_{11} : y = |x-1|+3x-3$



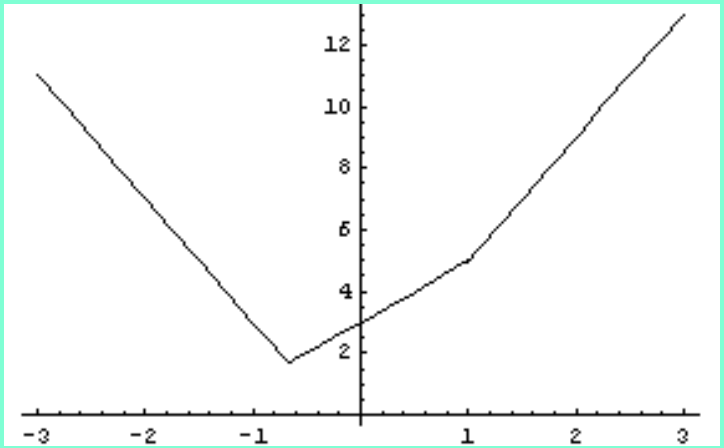
$f_{12} : y = |x-3|+2x-1$



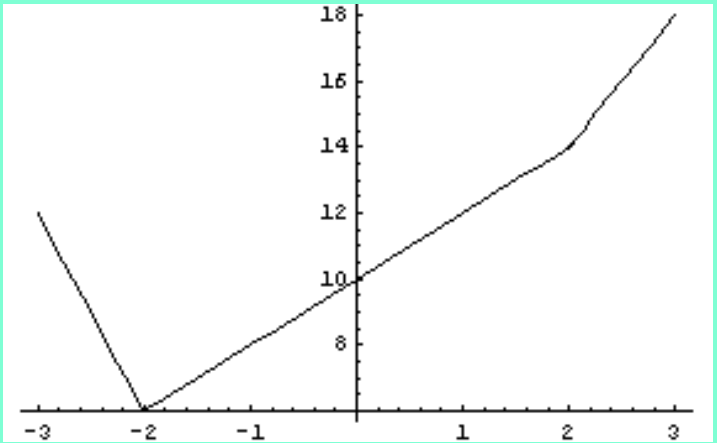
$f_{13}: y = |x-3| + |2x-1|$



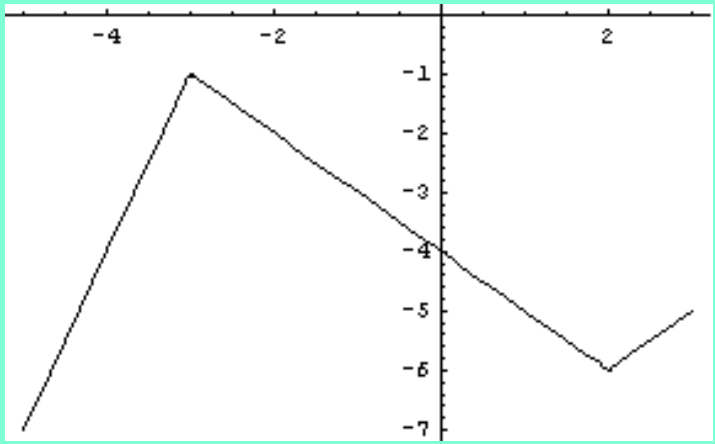
$f_{14}: y = |x-1| + |3x+2|$



$f_{15}: y = |x-2| + |4x+8| - x$



$f_{16}: y = |x-2| - 2|x+3| + 2x$



a) $A = [-2, 3],\ B = [1, 0]$

$y = -x + 1$

b) $A = [2, -4],\ B = [-4, 6]$

$y = \frac{-5}{3}\,x - \frac{2}{3}$

c) $A = [-2, -4],\ B = [0, 1]$

$y = \frac{5}{2}\,x + 1$

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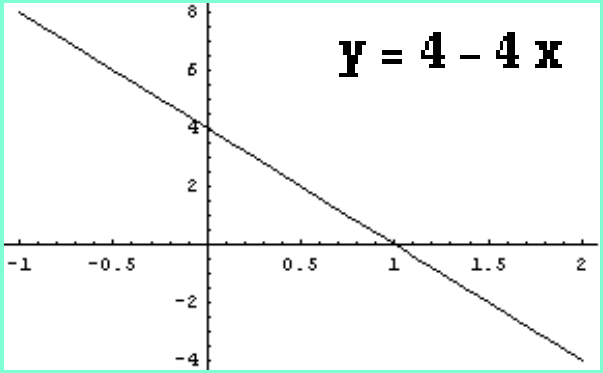
a)



b)