de pontos e não um reg.

• Exercícios:

742)

a) Não é função um elemento está em par

b) Não é função um elemento com dois pares

c) É função Todos elementos está associados

d) É função Todos elementos está associado

743)

d) é o único conjunto onde o domínio e a imagem são iguais.

744) a), d), e) não função pois os elementos não se encontram em dois pontos e o gráfico da função atinge todos os pontos

747) $F(x) = 3x - 2$

747| $F(x) = 3x - 2$

a| $f_6(2)$

$F(x) = 3 \cdot 2 - 2$

$F(x) = 4$

b| $f_6(-3)$

$F(x) = 3 \cdot -3 - 2$

$F(x) = -11$

c| $f_6(0)$

$F(x) = 3 \cdot 0 - 2$

$F(x) = -2$

d| $f_6\left(\frac{3}{2}\right) \neq 2$

748| $F(x) = x^2 - 3x + 4$

101/138

7498| $F(x) = x^2 - 3x + 9$

a| $F(2)$

$F(x) = 2^2 - 3 \cdot 2 + 9$

$F(x) = 4 - 6 + 9$

$F(x) = 2$

b| $F(-7)$

$F(x) = -7^2 - 3 \cdot -7 + 9$

$F(x) = -7 + 3 + 9$

$F(x) = 8$

c| $F\left(\frac{7}{2}\right)$

$F(x) = \left(\frac{7}{2}\right)^2 - 3 \cdot \frac{7}{2} + 9$

$F(x) \quad \frac{7}{4} - 3 \cdot \frac{7}{2} + 9$

$\frac{7}{4} + \frac{-3}{2} + \frac{9}{1}$

$\frac{77}{4}$

102/138

a| $F\left(-\frac{7}{3}\right)$

$F(x) = \left(-7\right)^2 \ 3 \cdot \frac{-7}{\ } + 4$

$\frac{}{9}$

a) $F\left(-\frac{7}{3}\right)$

$F(x) = \left(\frac{-7}{-3}\right)^2 - 3 \cdot \frac{-7}{-3} + 4$

$F(x) = \frac{7}{9} - \frac{3}{7} \cdot \frac{-7}{-3} + \frac{4}{7}$

$F(x) = \frac{1}{9} + \frac{7}{7} + \frac{4}{7}$

$F(x) \frac{96}{9}$

- Frações (Operações fracionárias)

105/138

• Exercícios:

749) P = 2

$b(p) = (0,25)^{-2} + x - 7$

$b(p) = \left(\frac{25}{100}\right)^{-2} + 2 - 7$

$b(p) = \left[\frac{100}{25}\right]^{2} + 7$

$b(p) = \frac{1000}{625} + \frac{7}{1} \rightarrow \frac{1000 + 625}{625} = \frac{1625}{625}$

$\frac{1625 : 5}{625 : 5} = \frac{325 : 5}{125 : 5} = \frac{65 : 5}{90 : 5} = \frac{13}{7}$

106/138

752) $F(x) = \frac{3x + 2}{x - 7}$

$F(2)$

106/138

752) $F(x) = \frac{3x+2}{x-7}$

$F(2)$

$\frac{3x+2}{x-7} = \frac{2}{7}$

$(x-7) \cdot 2 = 3x+2$

$2x - 2 = 3x + 2$

$-1x = 4$

$\frac{-1x}{-1} = \frac{4}{-1}$

$x = -4$

753)

$F(x) = x^2 - 5x + 9 =$ $F(2)$

$2^2 - 5 \cdot 2 + 9$

$4 - 10 + 9 = 3$

107/138

755)

$f(c \cdot x) = m \cdot f(x)$

7551

$f(m \cdot x) = m \cdot f(x)$

para $f(x)$

$f(m \cdot 0) = m \cdot f(0)$

$f(0) = m \cdot f(0)$

$x = 0 \quad m \neq 0$

• Domínio e imagem:

• Exercícios:

75)

a) $R = \{(0,1),(1,-1),(2,0)\}$

b) $R = \{(-1,2),(0,1),(1,2),(2,1)\}$

c) $R = \{(-1,-2),(0,-2),(1,-2)\}$

d) $R = \{(-2,0),(0,-2),(1,2),(2,-1)\}$

75)

a) $y = -2$ ou $y = +2$

b) $-2 \leq y \leq 2$

c) $y = 1$ ou $y = 2$

d) $-5 \leq y \leq 5$

76)

a) $D = \{0,1,2,3,-1,-2,-3\}$ $I = \{1,2,3,4,5\}$

d) $-5 \leq y \leq 5$

7601

a) $D = \{0, 1, 2, 3, -1, -2, -3\}$ $I = \{1, 2, 3, 4, 5\}$

b) $D = \{-2 \leq x \leq 3\}$ $I = \{2 \leq y \leq -3\}$

c) $D = \{-2 \leq x \leq 9\}$ $I = \{1 \leq y \leq 5\}$

d) $D = \{-3, -1, 1, 3, 5\}$ $I = \{3\}$

e) $D = \{-9 \leq x \leq 9\}$ $I = \{-3 \leq y \leq 5\}$

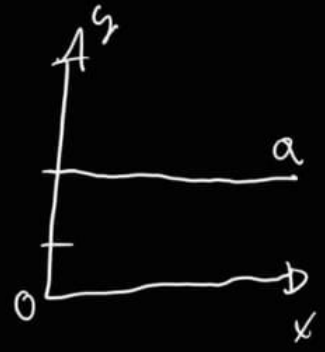
f) $D = \{-4, -3, -1, 0, 1, 2, 3, 4\}$ $I = \{-3, -2, -1, 0, 1, 2, 3\}$

* Equações Fracionárias:

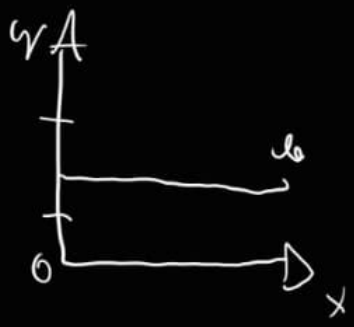
122/138

• Exercício: 76 9)

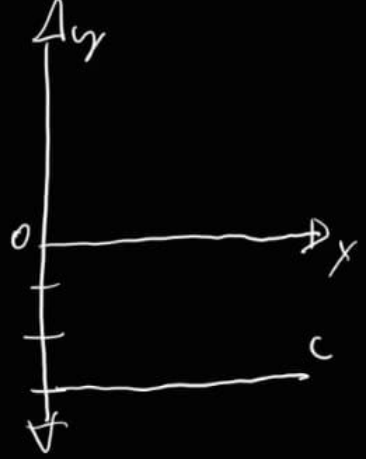
a) $y = 2$



b) $y = \sqrt{2}$



c) $y = -3$



123/138

17 0)

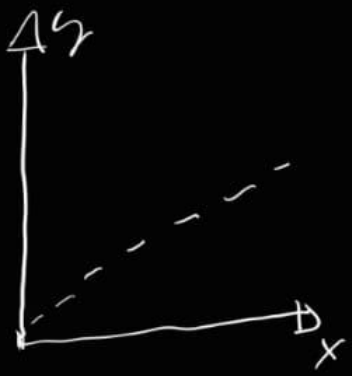
a) $y = x$

123/138

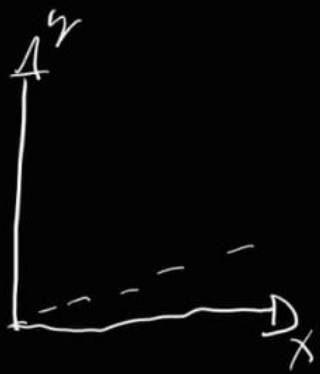
170)

a) $y = x$

b) $y = 2x$



c) $y = 3x$



124/138

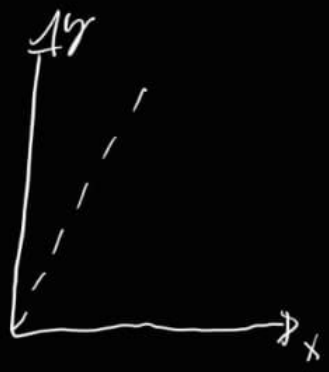
171)

$y = -x$

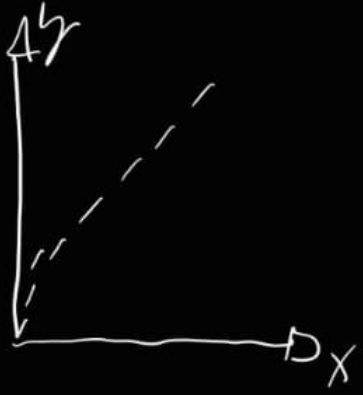
124/138

771)

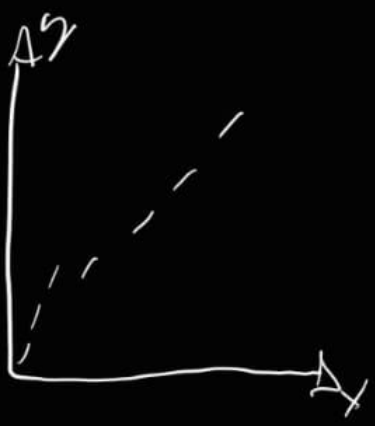
$y = -x$



b) $y - 2x$



c) $y = -3x$



125/138

772)

a) $y = 2x - 7$ Termo

772)

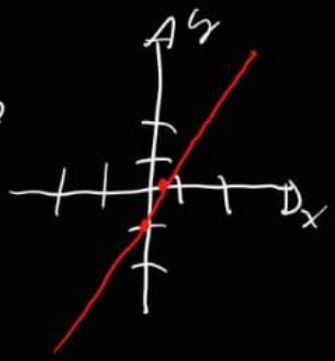
a) $y = 2x - 1$ → Termo Independente

$0 = 2x - 1$

$-2x = \frac{-1}{-2} = 0,5$

$x = 0,5$

$y = -1$

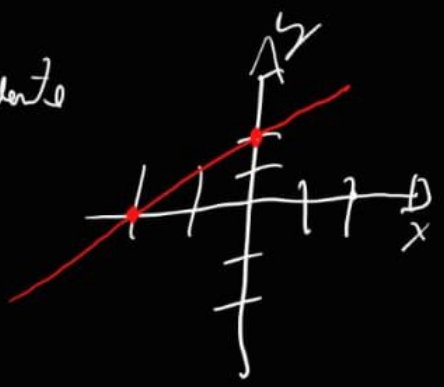


b) $y = x + 2$ → Termo Independente

$0 = x + 2$

$-x = +2 \ (-1)$

$x = -2$



$= 3x$

$0 = 3x + 2$ Termo Independente

126/138

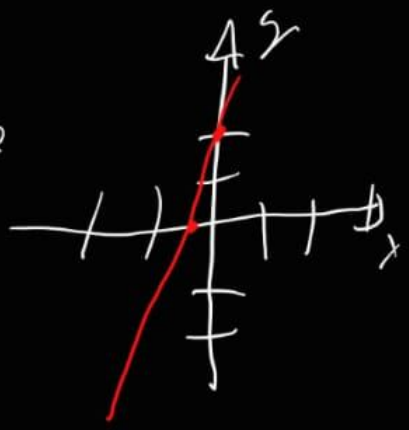
c) $y = 3x + 2$ → termo independente

$0 = 3x + 2$

$-3x = +2 \Rightarrow -0,66$

$x \cong -0,66 \cdot -3$

$y = +2$



d) $y = \frac{2x-3}{2}$ → termo independente

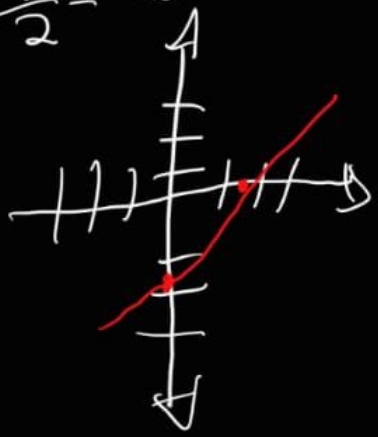
$\frac{-3}{2} = -1,5$

$0 = x - 1,5$

$-x = -1,5 \cdot (-1)$

$x = 1,5$

$y = -3$



127/138

774)

a) $x + y = 5$ $\quad y = -x + 5$

127/138

794)

a) $\begin{cases} x+y=5 \\ x-y=1 \end{cases}$

$y=-x+5$

$x=3$

$y=-3+5$

$y=2$

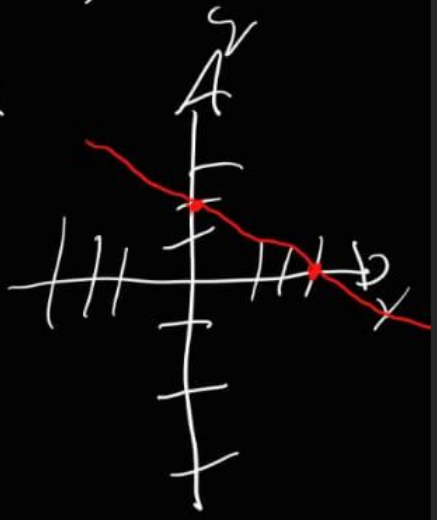
$x-(-x+5)=1$

$x+x-5=1$

$2x-5=1+5$

$2x=6$

$x=\frac{6}{2}=3$



b) $\begin{cases} 3x-2y=-7 \\ 2x-3y=8 \end{cases}$

$x=\frac{42-16}{-9--4}=\frac{26}{-13}$

$3 \cdot -2-2y=-7$

$S=\{-2,4\}$

$-6-2y=-7+6=\frac{8}{2}=4$

128/138

c) $\begin{cases} 2x-5y=9 \\ 7x+4y=10 \end{cases}$

$x=\frac{36--50}{8--35}=\frac{86}{43}$

$-6 - 2y = -7y + 6 = \frac{2}{5} = y$

128/138

c) $\begin{cases} 2x - 5y = 9 \\ 7x + 4y = 10 \end{cases}$ $x = \frac{36 - -50}{8 - -35} = \frac{86}{43}$

$2 \cdot 2 - 5y = 9$ $\quad x = 2$, $y = -1$, $S = \{2, -1\}$

$4 - 5y = \frac{9 - 4}{-5} = -1$

d) $\begin{cases} 4x + 5y = 2 \\ 6x + 7y = 4 \end{cases}$ $x = \frac{14 - 10}{28 - 30} = \frac{6}{2}$

$4 \cdot 3 + 5y = 2$ $\quad x = 3$, $y = 2$, $S = \{3, 2\}$

$12 + 5y = 2 - 12 = \frac{10}{5} = 2$

129/138

e) $\begin{cases} x + 3y = 7 \\ 2x + 9y = 3 \end{cases}$ $x = \frac{6 - 4}{9 - 4} = \frac{2}{0}$

129/138

a) $\begin{cases} x + 2y = 1 \\ 2x + 9y = 3 \end{cases}$ $x = \frac{6 - 4}{4 - 4} = \frac{2}{0}$

DV inicio
DV voltando

$0 + 2y = 1$
$y = \frac{1}{2} = 0{,}5$

$x = 0$
$y = 0.5$ $S = \{0, 0.5\}$

b) $\begin{cases} 2x + 5y = 0 \\ 3x - 2y = 0 \end{cases}$ $x \frac{0 - 0}{-4 - 15} = \frac{0}{19} = 0$

DV inicio
DV voltando

$0 + 5y = 0$

$x = 0$
$y = 0$ $S = \{0, 0\}$

130/138

176) $y = ax + b$

a) $(2, 3)$ e $(3, 5)$

130/138

176) $y = ax + b$

a) $(2,3)$ e $(3,5)$

$3 = a \cdot 2 + b$ $\quad 5 = a \cdot 3 + b$

$3 = 2a + b$ $\quad 5 = a3 + b$

$\begin{cases} 2a + b = 3 \\ 3a + b = 5 \end{cases}$ $\quad a = \frac{2-3}{2-3} = \frac{-2}{-1} = 2a = 2$

$a = 2$ $\quad S = \{2,7\}$

$2 \cdot 2 + b = 3$ $\quad b = -1$

$4 + b = 3 - 4 = -1$

$y = 2x + 7$

131/138

b) $(7,-1)$ e $(-1,2)$

$y = ax + b$ $\quad y = ax + b$ $\quad a = 2$

$b = -3$

131/138

b) $(1, -1) \in (-1, 2)$

$y = ax + b$ $\quad$ $y = ax + b$

$-1 = a \cdot 1 + b$ $\quad$ $2 = a \cdot -1 + b$

$-1 = a + b$ $\quad$ $2 = -a + b$

$\begin{cases} a + b = -1 \\ -a + b = 2 \end{cases}$

$a = \frac{-1 - -1}{1 - -2} = \frac{-2}{-1}$

$a = 2$

$b = -3$

$S = \{2, -3\}$

$2 + b = -1 - 2$

$b = -3$

$y = 2x + -3$

132/138

c) $y = ax + b$

$(3, -2) \in (2, -3)$

132/138

c) $y = ax + b$

$(3, -2)$ e $(2, -3)$

$-2 = a \cdot 3 + b$ $\quad -3 = a \cdot 2 + b$

$-2 = a3 + b$ $\quad -3 = a2 + b$

$\begin{cases} a2 + b = -3 \\ a3 + b = -2 \end{cases}$ $x = \frac{2^0 - 3 - -2^{3^0}}{2 - 3^{4^0}} = \frac{-5}{7} = -5$

$-5 + b = -3 + 5$

$b = +2$

$a = -5$

$b = +2$

$y = -5x + 2$

133/138

Dados $F(1) = 3$ e $F(7) = 7$

Injetora se $f(1) = 3$ e $f(7) = 7$

$-1 = 3$

$0 = 2$

$1 = 1$

$2 = 0$

$3 = -1$

$f(3) = -1$

• Domínio dos números: