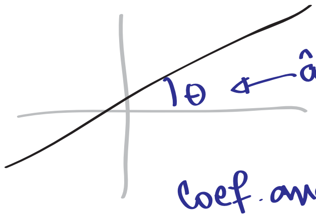
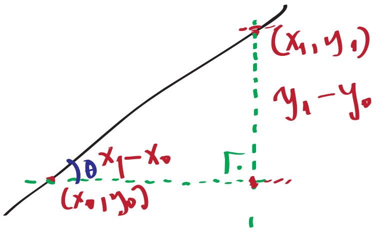


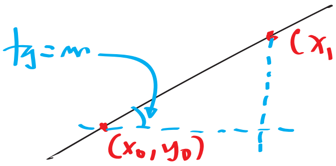

Coef. angular $m = \tan\theta$.

Se a reta passar por ptos $(x_0, y_0)$, $(x_1, y_1)$




$$\tan\theta = \frac{y_1 - y_0}{x_1 - x_0}$$
$$\parallel$$
$$m$$

Se a reta tem inclinação $m$ e passa pelo pto. $(x_0, y_0)$




$$m = \frac{y - y_0}{x - x_0}$$

$$\therefore \boxed{y - y_0 = m(x - x_0)}$$

Eq. da reta por $(2, -5)$ c/ $m = -3$

$$y - y_0 = m \cdot (x - x_0)$$

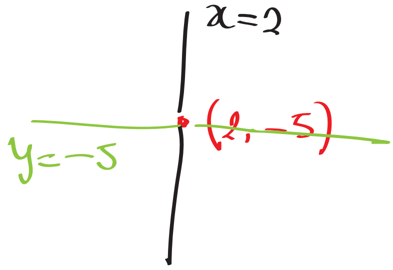
$$\therefore \ y + 5 = -3\,(x - 2)$$

$$\therefore \ y = -5 - 3x + 6$$

$$/\!/ \ y = -3x + 1$$

coef. angular: $-3$

coef. linear $= 1$ = altura em que a reta corta o eixo y




$2x - 4y = 3 \quad m = ?$

$$4y = 2x - 3$$

$$\therefore \ y = \frac{1}{2}x - \frac{3}{4} \qquad m = \frac{1}{2}$$

Retas paralelas = mesmo $m$

$$\underbrace{m = \frac{1}{2} \quad e \quad (x_0, y_0) = (2, -5)}$$
$$\Downarrow$$
$$y + 5 = \frac{1}{2}(x - 2)$$

$\boxed{A = (-7, 4)}\ (x_0, y_0)$

$B = (5, -12)$

$$/\!/\ y - 4 = -\frac{4}{3}(x+7)\ /\!/$$

Int. c/ eixo $x$: $y=0$

$$m = \frac{-12-4}{5+7} = \frac{-16}{12} = \overset{m}{-\frac{4}{3}}$$

$\underline{y=0}$:

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

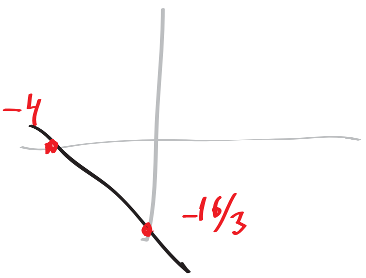
$$\therefore\ 3 = x + 7$$

$$\therefore\ x = -4$$

Int. c/ eixo $y$: $x=0$

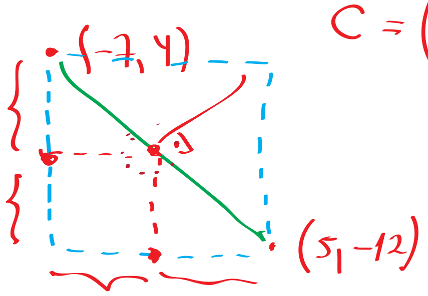
$\underline{x=0}$: $y - 4 = -4/3\,(7)$

$$y = 4 - \frac{28}{3} = \frac{-16}{3}$$




$$C = \left(\frac{-7+5}{2}, \frac{4-12}{2}\right)$$

$$= (-1, -4)$$




reta original

$m = -4/3$

$\Rightarrow m_{\perp} = \frac{3}{4}$

$(x_0, y_0) = (-1, -4)$

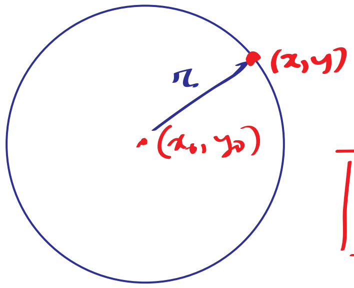
$$\therefore\ \boxed{y + 4 = \frac{3}{4}(x+1)}$$

Retas perps: prod. dos coefs angulares $= -1$

$\theta \qquad \theta + \frac{\pi}{2}$

$$\tan\theta \cdot \tan\left(\theta + \frac{\pi}{2}\right)$$

$$\frac{\cancel{\operatorname{sen}\theta}}{\cancel{\cos\theta}} \cdot \frac{\operatorname{sen}\theta \overbrace{\cos\frac{\pi}{2}}^{0} + \overbrace{\operatorname{sen}\frac{\pi}{2}}^{1} \cancel{\cos\theta}}{\cos\theta \underbrace{\cos\frac{\pi}{2}}_{0} - \cancel{\operatorname{sen}\theta} \underbrace{\operatorname{sen}\frac{\pi}{2}}_{1}} = -1$$




$$\sqrt{(x-x_0)^2+(y-y_0)^2}=r$$
$$\Updownarrow$$
$$\boxed{(x-x_0)^2+(y-y_0)^2=r^2}$$

Centro do círculo de eq.

$$x^2+y^2-6x+10y+9=0$$

$$x^2-6x \quad + y^2+10y \quad +9=0$$

$x \quad -3 \qquad y \quad 5$

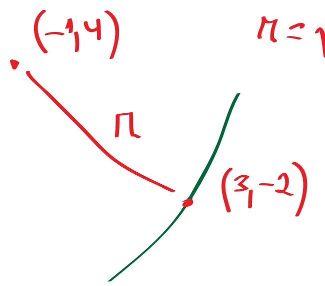
$(x-3)^2 \qquad (y+5)^2$

$$(x-3)^2+(y+5)^2-\cancel{9}-25\cancel{+9}=0$$

$$\therefore (x-3)^2+(y+5)^2=25$$

$$c=(3,-5) \quad r=5$$

Círculo $c=(-1,4)$ passando por $(3,-2)$




$$r=\sqrt{(3+1)^2+(-2-4)^2}$$
$$=\sqrt{16+36}=\sqrt{52}$$

Eq: $(x+1)^2+(y-4)^2=52$

$|x|<4 \iff -4<x<4$

$|y|<2 \iff -2<y<2$

gráfico de $f$ = conjunto de todos os pontos $(x,y)$ tais que $y=f(x)$.

domínio de $f$ = maior conjunto possível onde $f$ está definida

imagem de $f$ = conjunto de todos os valores $f(x)$, onde $x \in \text{dom}(f)$

$$f(x)=x^3$$

$$\frac{f(2+h)-f(2)}{h}=\frac{(2+h)^3-2^3}{h}$$

$$=\frac{\cancel{2^3}+3\cdot 2^2\cancel{h}+3\cdot 2\cdot h^{\cancel{2}}+h^{\cancel{3}}-\cancel{2^3}}{\cancel{h}}$$

$$=12+6h+h^2$$

$f(x) = \dfrac{2x+1}{\underbrace{x^2+x-2}}$ $\quad \text{dom } f = \mathbb{R} \setminus \{1, -2\}$

Não está def em $x^2+x-2=0$

$-2 \quad 1$

$f(x) = \sqrt{\underbrace{4-x}} + \sqrt{\underbrace{x^2-1}}$ $\quad -1 \;\ominus\; 1$

$4 - x \geq 0 \qquad x^2 - 1 \geq 0$

$x \leq 4 \qquad x \leq -1$ ou

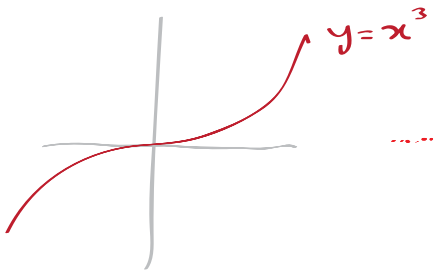
$x \geq 1$

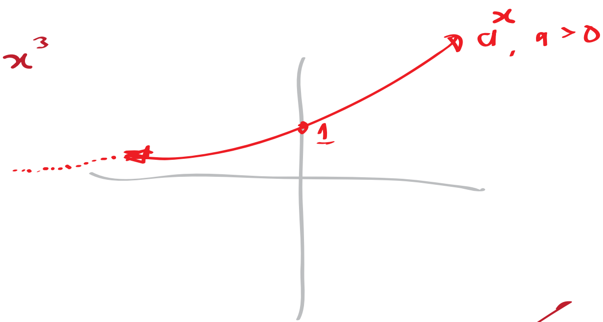
$4$

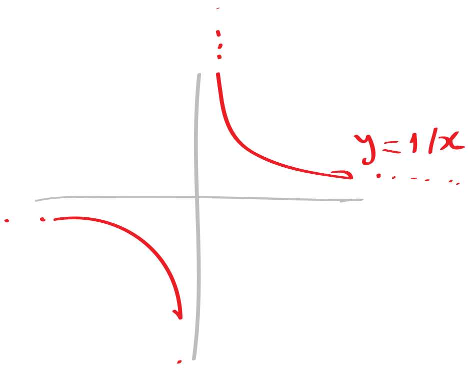
$-1 \quad +1$

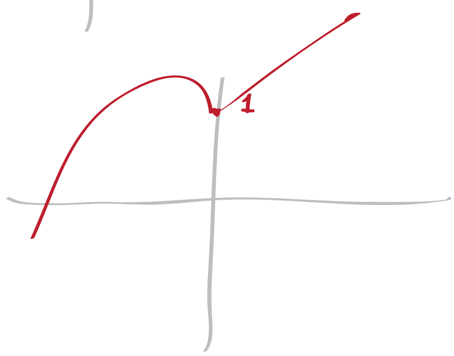
$\Big\} \triangleright \text{dom } f$

$= (-\infty, -1] \cup [1, 4]$




$f(x) = x^2 + 2x - 1$

$g(x) = 2x - 3$

a) $f \circ g$

$(f \circ g)(x) := f(g(x)) = f(2x-3)$

$= (2x-3)^2 + 2(2x-3) - 1$

$4x^2 - 12x + 9 + 4x - 6 - 1$

$= 4x^2 - 8x + 2$

b) $g \circ f$

$(g \circ f)(x) = g(x^2 + 2x - 1)$

$= 2(x^2 + 2x - 1) - 3$

$2x^2 + 4x - 5$

$g \circ g \circ g$

$g \circ g \circ g(x) = g(g(2x-3))$

$= g(2(2x-3)-3)$

$= 2[2(2x-3)-3]-3$