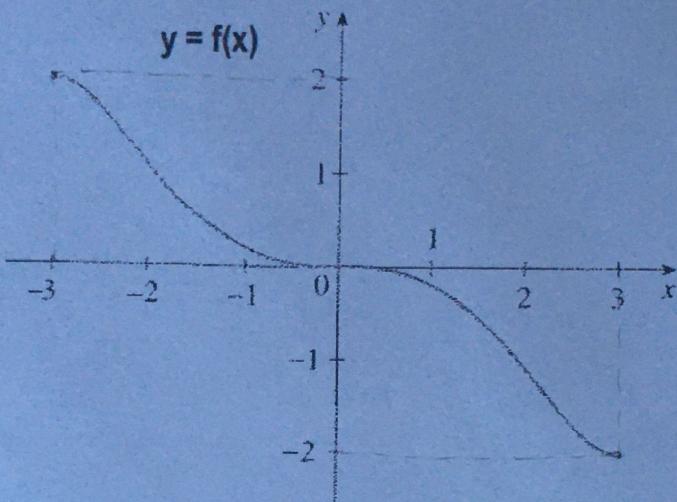


9.5

Trabalho 1 + Trabalho 2 (10 pontos)

Nome: Shirley Oliveira Nascimento Matrícula: 11921051222

- (1,0 ponto) Obtenha os valores de x onde $|2x - 1| = 1$
- (1,0 ponto) Resolva em \mathbb{R} a inequação $\frac{x-1}{2} + \frac{x}{3} \geq 4$ e use a notação de intervalo para exibir o conjunto solução
- (1,0 ponto) É dado o gráfico de f . Determine o domínio e a imagem de f^{-1}



- (3,0 pontos) Determine as taxas trigonométricas exatas para ângulo cuja medida em radianos é $\frac{5\pi}{6}$
- (2,5 pontos) Determine as taxas trigonométricas restantes se $\tan \theta = 2$, $0 < \theta < \frac{\pi}{2}$
- Calcule
 - (0,5 pontos) $\sec(\arctan 1)$
 - (0,5 pontos) $\arctan \sqrt{3}$
- (0,5 pontos)

$$2^{\log_2 3 + \log_2 5}$$

DOM	SEG	TER	QUA	QUI	SEX	SÁB
DOM	LUN	MAR	MIÉ	JUE	VIE	SÁB

31	50	2020
----	----	------

Nome: Marcellly Oliveira Vassourito

Matrícula: 11921051222

Página 1

1. Obtém os valores de x onde $|2x - 1| = 1$

$$2x - 1 = 1 \quad \text{ou} \quad 2x - 1 = -1$$

$$2x = 1 + 1 \quad 2x = -1 + 1$$

$$2x = 2 \quad 2x = 0$$

$$x = 2 : 2 \quad x = 0 : 2$$

Resposta: 1 e 0

2. Resolva em \mathbb{R} a inequação $\frac{x-1}{2} + \frac{x}{3} \geq 4$ e use a notação de intervalo

para esboçar o conjunto solução

$$\frac{x-1}{2} + \frac{x}{3} \geq 4$$

$$2 \quad 3$$

$$3(x-1) + 2(x) \geq 4$$

$$6$$

$$3x - 3 + 2x \geq 4$$

$$6$$

$$5x - 3 \geq 4$$

$$6$$





Página 2

$$5x - 3 > 4.6$$

$$5x - 3 \geq 24$$

$$5x \geq 27 + 3$$

$$5x \geq 27$$

$$x \geq 27$$

$$5$$

$$\xrightarrow{27} \xrightarrow{5} x$$

$$S = \{x \in \mathbb{R} \mid x \geq \frac{27}{5}\} = \left[\frac{27}{5}, +\infty\right)$$

$$\text{Resposta: } S = \{x \in \mathbb{R} \mid x \geq \frac{27}{5}\} = \left[\frac{27}{5}, +\infty\right)$$

3. É dado o gráfico de f . Determine o domínio e a imagem de f^{-1}

$$D_f = [-3, 3]$$

$$D_{f^{-1}} = [2, -2] \quad [-2, 2]$$

$$I_f = [2, -2] \quad [-2, 2] \quad I_{f^{-1}} = [-3, 3] \quad \checkmark$$

$$\text{Resposta: } D_{f^{-1}} = [2, -2] \quad [-2, 2] \quad I_{f^{-1}} = [-3, 3] \quad \checkmark$$

4. Determine as funções trigonométricas circulares para ângulo cuja medida em radianos é 5π .

6

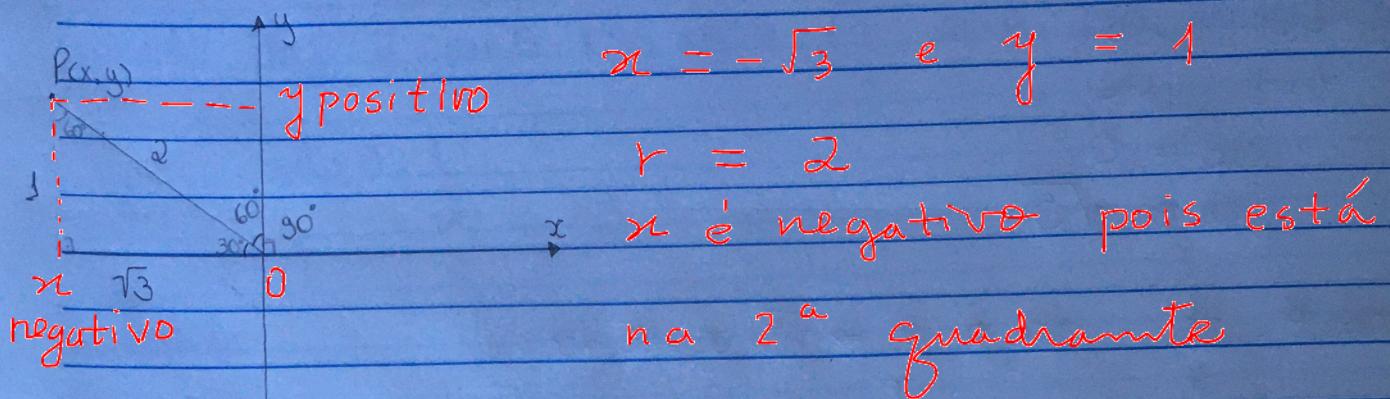
$$5\pi = 150^\circ$$

6

DOM DOM	SEG LUN	TER MAR	QUA MIÉ	QUI JUE	SEX VIE	SÁB SÁB
------------	------------	------------	------------	------------	------------	------------



Página 3



$$\frac{\text{sen } 5\pi}{6} = \frac{y}{r} = \frac{1}{2} \quad \checkmark \quad \cos 5\pi = \frac{x}{r} = \frac{-\sqrt{3}}{2} \quad \checkmark \quad \operatorname{tg} 5\pi = \frac{y}{x} = \frac{1}{-\sqrt{3}} = -\frac{1}{\sqrt{3}}$$

$$\frac{\operatorname{sec} 5\pi}{6} = \frac{r}{x} = \frac{2}{-\sqrt{3}} = -\frac{2\sqrt{3}}{3} \quad \checkmark \quad \frac{\operatorname{csc} 5\pi}{6} = \frac{r}{y} = \frac{2}{1} = 2 \quad \checkmark \quad \frac{\operatorname{ctg} 5\pi}{6} = \frac{x}{y} = \frac{-\sqrt{3}}{1} = -\sqrt{3}$$

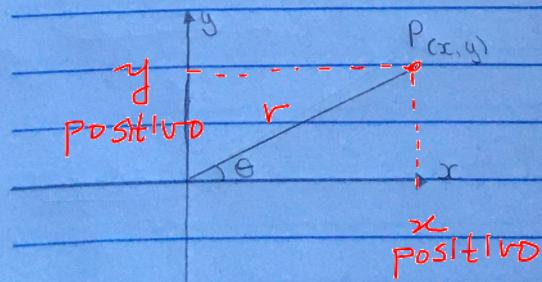
Portanto: $\frac{\text{sen } 5\pi}{6} = \frac{1}{2} \checkmark$, $\cos 5\pi = -\frac{\sqrt{3}}{2} \checkmark$, $\operatorname{tg} 5\pi = -\frac{1}{\sqrt{3}} \checkmark$, $\operatorname{sec} 5\pi = -\frac{2\sqrt{3}}{3} \checkmark$, $\operatorname{csc} 5\pi = 2 \checkmark$, $\operatorname{ctg} 5\pi = -\sqrt{3} \checkmark$

$$\frac{\operatorname{sec} 5\pi}{6} = -\frac{2\sqrt{3}}{3} ; \quad \frac{\operatorname{ctg} 5\pi}{6} = -\sqrt{3}$$

5. Determine as funções trigonométricas fundamentais de $\operatorname{tg} \theta = 2$, $0 < \theta < \frac{\pi}{2}$

$$\operatorname{tg} \theta = 2, \quad 0 < \theta < \frac{\pi}{2}$$

$$\operatorname{tg} \theta = 2 = \frac{y}{x}$$



$$y = 2 \quad \} \text{ são positivos}$$

$x = 1 \quad \}$ pois estão na 1ª quadrante

$$r = \sqrt{x^2 + y^2} = \sqrt{1+4} = \sqrt{5}$$





Página 3

$$\operatorname{tg}^2 \theta + 1 = \operatorname{sec}^2 \theta$$

$$4 + 1 = \operatorname{sec}^2 \theta$$

$$\operatorname{sec}^2 \theta = 5$$

$$\operatorname{sec} \theta = \sqrt{5}$$

$$\cos \theta = \frac{x}{\sqrt{5}} \quad \operatorname{sec} \theta = \frac{\sqrt{5}}{x} \Rightarrow \sqrt{5} \cdot x = \sqrt{5} \cdot x$$

$$\cos \theta = \frac{x}{\sqrt{5}}$$

$$x = \sqrt{5}$$

$$\cos \theta = \frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5} \quad x = \sqrt{5}$$

$$\operatorname{tg} \theta = \frac{y}{x}$$

$$2 = \frac{y}{\sqrt{5}}$$

$$y = 2\sqrt{5}$$

$$\operatorname{sen} \theta = \frac{y}{\sqrt{5}} = \frac{2\sqrt{5}}{5} \quad \checkmark$$

$$\operatorname{cosec} \theta = \frac{1}{\sin \theta} = \frac{1}{\frac{2\sqrt{5}}{5}} = \frac{5}{2\sqrt{5}} = \frac{5\sqrt{5}}{10} = \frac{\sqrt{5}}{2} \quad \checkmark$$

$$\operatorname{ctg} \theta = \frac{x}{y} = \frac{\sqrt{5}}{2\sqrt{5}} = \frac{1}{2} \quad \checkmark$$

Página 5

Resposta: $\operatorname{tg} \theta = 2$; $\operatorname{sec} \theta = \sqrt{5}$; $\operatorname{cosec} \theta = \sqrt{5}$; $\operatorname{sen} \theta = \frac{2\sqrt{5}}{5}$; $\operatorname{cos} \theta = \frac{\sqrt{5}}{5}$

$$\operatorname{ctg} \theta = \frac{1}{2}$$

6. Calcule

a) $\operatorname{sec}(\operatorname{arctg} 1)$

$$\operatorname{arctg} x = y \Leftrightarrow \operatorname{tg} y = x$$

$$\operatorname{tg} \frac{\pi}{4} = 1 \text{ logo } \operatorname{arctg} 1 = \frac{\pi}{4}$$

$$\operatorname{tg}^2 \theta + 1 = \operatorname{sec}^2 \theta$$

$$1^2 + 1 = \operatorname{sec}^2 \theta$$

$$\operatorname{sec}^2 \theta = 2$$

$$\operatorname{sec} \theta = \sqrt{2}$$

Resposta: $\sqrt{2}$

b) $\operatorname{arctg} \sqrt{3}$

$$\operatorname{arctg} x = y \Leftrightarrow \operatorname{tg} y = x$$

$$\operatorname{tg} \frac{\pi}{3} = \sqrt{3}, \text{ logo } \operatorname{arctg} \sqrt{3} = \frac{\pi}{3}$$



Página 6

Resposta: 11
3

$$7 \quad 2^{\log_2 3 + \log_2 5}$$

$$\frac{1}{2} \log_2 3 + \log_2 5 \Rightarrow \frac{1}{2} \log_2 15 \Rightarrow 15$$

Resposta: 15