



CORAÇÃO DE JESUS  
SANTO ANDRÉ-SP

Em rede as ideias acontecem!

Nome: \_\_\_\_\_ ano/série: \_\_\_\_\_

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MATEMÁTICA – GABARITO DA ATIVIDADE DA SEMANA 1

1) Calcule o valor da expressão  $E = \frac{\text{sen } 1380^\circ + \cos 13\pi}{\text{sen } \frac{16\pi}{3}}$

$$E = \frac{\text{sen}300^\circ + \cos180^\circ}{\text{sen}240^\circ} = \frac{-\frac{\sqrt{3}}{2} - 1}{-\frac{\sqrt{3}}{2}} = \frac{-\frac{\sqrt{3}-2}{2}}{-\frac{\sqrt{3}}{2}} = \frac{-\sqrt{3}-2}{-\sqrt{3}} = \frac{\sqrt{3}+2}{\sqrt{3}} =$$
$$= \frac{\sqrt{3}+2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{3+2\sqrt{3}}{3}$$

$$1380^\circ = 360^\circ \times 3 + 300^\circ$$

$$13\pi = 6 \times 2\pi + \pi \Rightarrow \pi = 180^\circ$$

$$\frac{16\pi}{3} = \frac{12\pi}{3} + \frac{4\pi}{3} \Rightarrow \frac{4\pi}{3} = \frac{4 \cdot 180^\circ}{3} = 240^\circ$$

2) Ache o valor da expressão:  $\text{sen } 8\pi + \cos 11\pi - \text{sen } \frac{15\pi}{2} + \cos \frac{33\pi}{4}$

$$\text{sen}0^\circ + \cos180^\circ - \text{sen}270^\circ + \cos45^\circ =$$

$$= 0 + (-1) - (-1) + \frac{\sqrt{2}}{2} = \frac{\sqrt{2}}{2}$$

$$8\pi = 4x2\pi + 0$$

$$11\pi = 5x2\pi + \pi \Rightarrow \pi = 180^\circ$$

$$\frac{15\pi}{2} = \frac{12\pi}{2} + \frac{3\pi}{2} \Rightarrow \frac{3\pi}{2} = \frac{3 \cdot 180^\circ}{2} = 270^\circ$$

$$\frac{33\pi}{4} = \frac{32\pi}{4} + \frac{\pi}{4} \Rightarrow \frac{\pi}{4} = \frac{180^\circ}{4} = 45^\circ$$

3) Qual o valor da expressão:  $\frac{\operatorname{sen} \frac{8\pi}{3} - \cos 5\pi}{\operatorname{tg} \frac{13\pi}{6}}$

$$\begin{aligned} E &= \frac{\operatorname{sen} 120^\circ - \cos 180^\circ}{\operatorname{tg} 30^\circ} = \frac{\frac{\sqrt{3}}{2} - (-1)}{\frac{\sqrt{3}}{3}} = \frac{\frac{\sqrt{3}+2}{2}}{\frac{\sqrt{3}}{3}} = \frac{\sqrt{3}+2}{2} \cdot \frac{3}{\sqrt{3}} = \frac{3\sqrt{3}+6}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \\ &= \frac{3 \cdot 3 + 6\sqrt{3}}{2 \cdot 3} = \frac{9+6\sqrt{3}}{6} = \frac{3+2\sqrt{3}}{3} \end{aligned}$$

$$5\pi = 2x2\pi + \pi \Rightarrow \pi = 180^\circ$$

$$\frac{8\pi}{3} = \frac{6\pi}{3} + \frac{2\pi}{3} \Rightarrow \frac{2\pi}{3} = \frac{2 \cdot 180^\circ}{3} = 120^\circ$$

$$\frac{13\pi}{6} = \frac{12\pi}{6} + \frac{\pi}{6} \Rightarrow \frac{\pi}{6} = \frac{180^\circ}{6} = 30^\circ$$

4) Calcule o valor da expressão  $\frac{\cos 2x + \operatorname{sen} 4x}{\cos x + \operatorname{sen} x}$ , para  $x = \frac{\pi}{3}$

$$\begin{aligned} \frac{\cos 2 \cdot \frac{\pi}{3} + \operatorname{sen} 4 \cdot \frac{\pi}{3}}{\cos \frac{\pi}{3} + \operatorname{sen} \frac{\pi}{3}} &= \frac{\cos 120^\circ + \operatorname{sen} 240^\circ}{\cos 60^\circ + \operatorname{sen} 60^\circ} = \frac{-\frac{1}{2} + \left(-\frac{\sqrt{3}}{2}\right)}{\frac{1}{2} + \frac{\sqrt{3}}{2}} = \frac{\frac{-1-\sqrt{3}}{2}}{\frac{1+\sqrt{3}}{2}} = \frac{-1-\sqrt{3}}{1+\sqrt{3}} = \\ &= \frac{-(1+\sqrt{3})}{1+\sqrt{3}} = -1 \end{aligned}$$

