



MATEMÁTICA



aula

# Soma de Arcos e Arcos Duplos

## Soma de arcos:

$$\text{sen}(a \pm b) = \text{sen}a \cdot \cos b \pm \text{sen}b \cdot \cos a$$

$$\cos(a \pm b) = \cos a \cdot \cos b \mp \text{sen}a \cdot \text{sen}b$$

$$\text{tg}(a \pm b) = \frac{\text{tga} \pm \text{tgb}}{1 \mp \text{tga} \cdot \text{tgb}}$$

# Exercícios

(Ufes) **Se  $x = 105^\circ$ , então  $\sin x$  é:**

a)  $\frac{6\sqrt{2} - 2}{8}$

d)  $\frac{(3 + \sqrt{2})\sqrt{3}}{8}$

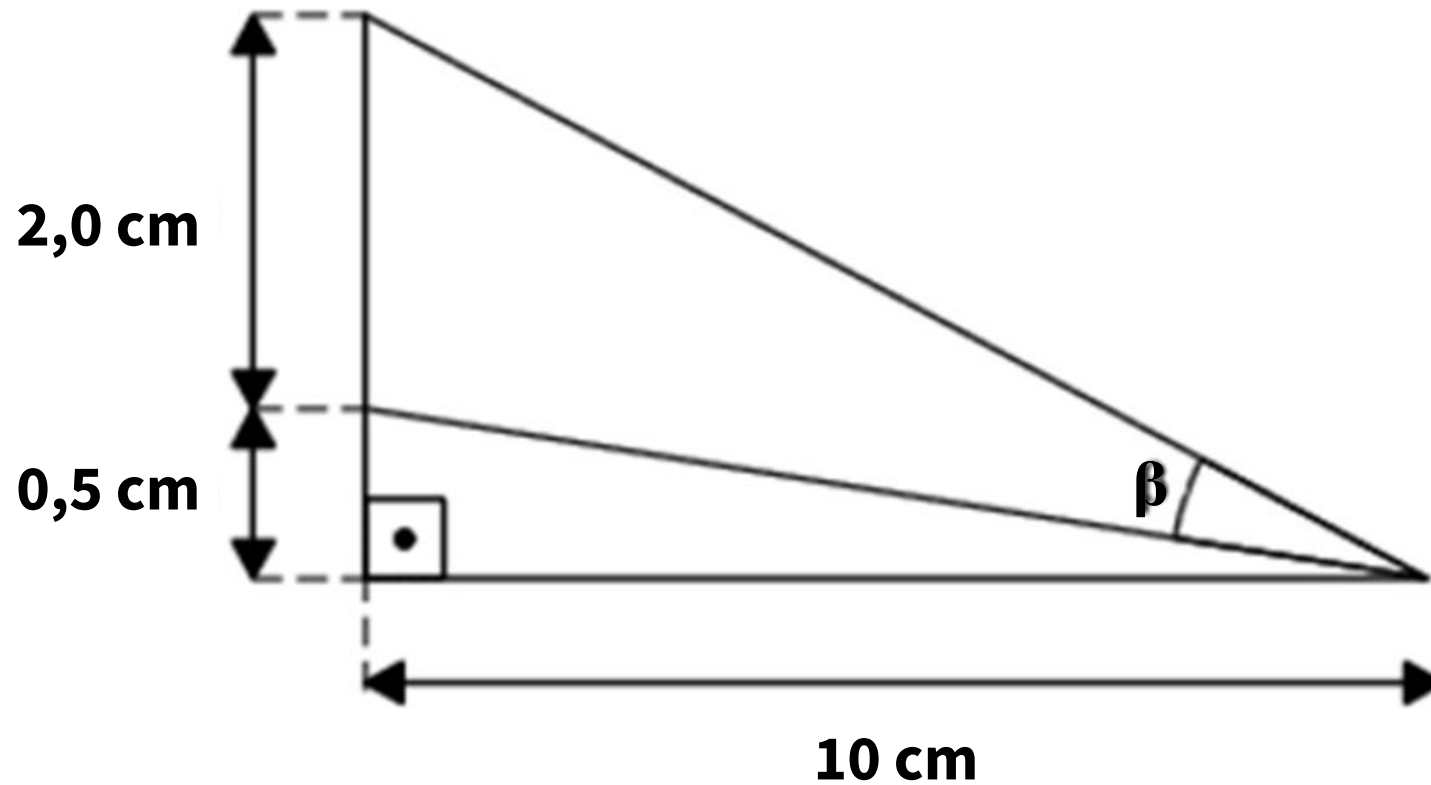
b)  $\frac{6\sqrt{3} - 7}{4}$

e)  $\frac{(1 + \sqrt{3})\sqrt{2}}{4}$

c)  $\frac{7\sqrt{3} - 5}{8}$

# Exercícios

(Mackenzie) Na figura,  $\text{tg } \beta$  igual a:



a)  $16/81$

b)  $8/27$

c)  $19/63$

d)  $2/3$

e)  $1/4$

## Arcos Duplos:

$$\text{sen}(2a) = 2.\text{sen}a.\text{cos} a$$

$$\text{cos}(2a) = \text{cos}^2 a - \text{sen}^2 a$$

$$\text{tg}(2a) = \frac{2.\text{tga}}{1 - \text{tg}^2 a}$$

# Exercícios

(PUCRJ) **Sabemos que  $\cos x = 4$  e  $x \in \left[0, \frac{\pi}{2}\right]$ . Quanto vale  $\operatorname{tg} 2x$ ?**

- a)  $3/4$
- b)  $7/24$
- c)  $24/7$
- d)  $1/25$
- e)  $1/24$

# Exercícios

(PUCRJ) Sabendo que  $\pi < x < \frac{3\pi}{2}$  e  $\text{sen } x = -\frac{1}{3}$ , é correto afirmar que  $\text{sen } (2x)$  é:

a)  $-\frac{2}{3}$

b)  $-\frac{1}{6}$

c)  $\frac{\sqrt{3}}{8}$

d)  $\frac{1}{27}$

e)  $\frac{4\sqrt{2}}{9}$

# Exercícios

(IFSP) Sabendo que  $\cos \Theta - \operatorname{sen} \Theta = \frac{\sqrt{6}}{3}$ , então o valor de  $\operatorname{sen}(2\Theta)$  é:

a) -1

b)  $-\frac{5}{9}$

c)  $\frac{1}{6}$

d)  $\frac{1}{3}$

e)  $\frac{5}{6}$





MATEMÁTICA



aula

# Soma de Arcos e Arcos Duplos