SOLUZIONI TEST TRIGONOMETRIA

DOM. 2

$$\cos^2 1 - \sin^2 1 = ?$$

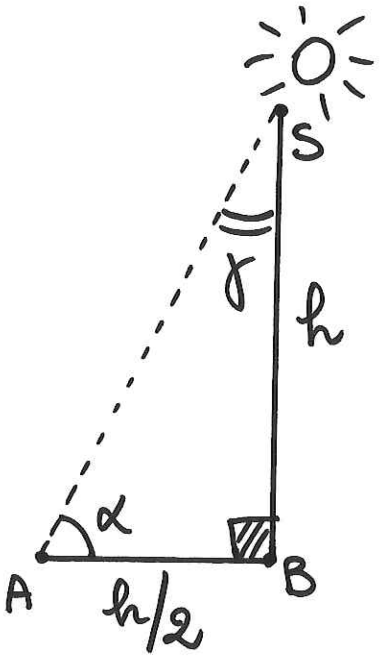
RICORDANDO:

$$\cos 2x = \cos^2 x - \sin^2 x$$

L'espressione è $\cos(2)$

RISP. 2

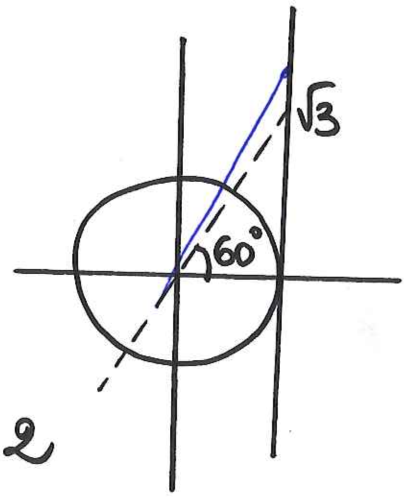
DOM. 4



$\overline{AB}$ = ombra

$\overline{AB} = \overline{BS} \cdot tg\,\gamma$ (x teo Δ rettangoli)

$\frac{h}{2} = h \cdot tg\,\gamma \implies tg\,\gamma = \frac{1}{2}$



oppure $\overline{BS} = \overline{AB} \cdot tg\,\alpha \implies tg\,\alpha = 2$

Se un angolo è $60° \implies tg\,60° = \sqrt{3} < 2 \implies \alpha > 60°$

RISP. 2

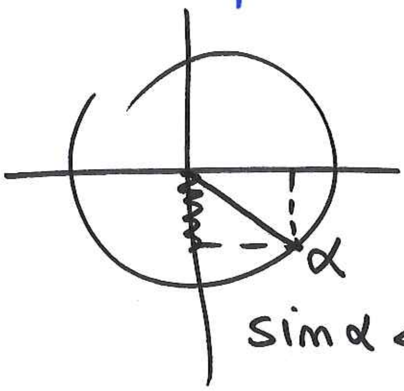
DOM. 5

$$\frac{3}{2}\pi < \alpha < 2\pi \qquad \cos\alpha = \frac{1}{4}$$

$$\sin\left(\alpha + \frac{\pi}{4}\right) = ?$$

$$\sin\left(\alpha + \frac{\pi}{4}\right) = \sin\alpha\cos\frac{\pi}{4} + \cos\alpha\sin\frac{\pi}{4}$$

$$\sin\alpha = -\sqrt{1-\cos^2\alpha} = -\frac{\sqrt{15}}{4}$$



$\sin\alpha < 0$

$$\sin\left(\alpha + \frac{\pi}{4}\right) = -\frac{\sqrt{15}}{4}\cdot\frac{\sqrt{2}}{2} + \frac{1}{4}\cdot\frac{\sqrt{2}}{2} =$$

$$= \frac{\cancel{\sqrt{2}}\left(1-\sqrt{15}\right)}{4\cdot\cancel{2}} = \frac{1-\sqrt{15}}{4\cdot\sqrt{2}}$$

RISP. 4

DOM. 8

$$4 \sin x = 3K$$

Ricorda:

$$-1 \leq \sin \alpha \leq 1$$

$$\sin x = \frac{3}{4} K$$

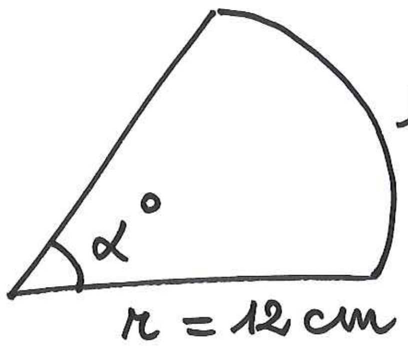
$$-1 \leq \frac{3}{4} K \leq 1$$

$$-4 \leq 3K \leq 4$$

$$-\frac{4}{3} \leq K \leq \frac{4}{3}$$

RISP. 5

DOM. 10



$\alpha° = ?$

$$\alpha(rad) = \frac{\ell}{r}$$

$$\alpha(rad) = \frac{3\,cm}{12\,cm} = \frac{1}{4}\,rad$$

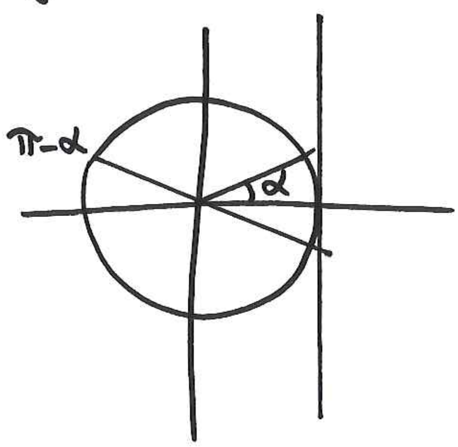
$$\alpha° = \frac{1}{4} \cdot 57° \cong 15°$$

RISP. 3

DOM. 11

$\beta = \pi - \alpha$ angoli SUPPLEMENTARI

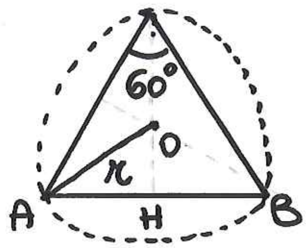
$$tg\,\beta = -\,tg\,\alpha$$



$$\Longrightarrow tg\,\alpha + tg\,\beta = 0$$

RISP. 1

DOM. 12



$$\overline{AB} = 2r \cdot \sin 60° =$$
$$= \cancel{2}r \cdot \frac{\sqrt{3}}{\cancel{2}}$$

$$l = \sqrt{3} \cdot r$$

$$\frac{\text{lungh. circonf.}}{2p(\Delta)} = ?$$

$$\frac{2\pi \cdot r}{3l} = \frac{2\pi \cancel{r}}{3\sqrt{3} \cdot \cancel{r}} = \frac{2\pi}{3\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}\,\pi}{9}$$

RISP. 2

DOM. 13

$$\sin 31° + \sin 29° = ?$$

$$(30°+1) \qquad (30°-1)$$

$$= \sin 30° \cdot \cos 1° + \cancel{\cos 30°} \sin 1° + \sin 30° \cos 1° - \cancel{\cos 30°} \sin 1° =$$

$$= 2 \sin 30° \cdot \cos 1° =$$

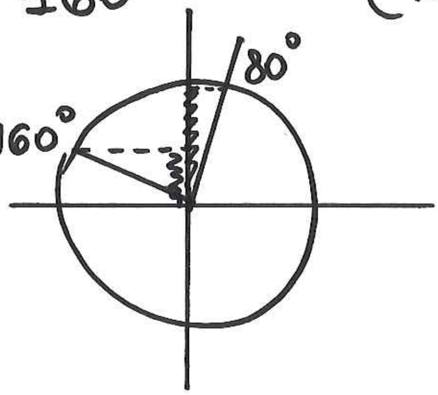
$$= 2 \cdot \frac{1}{2} \cdot \cos 1° =$$

$$= \cos 1°$$

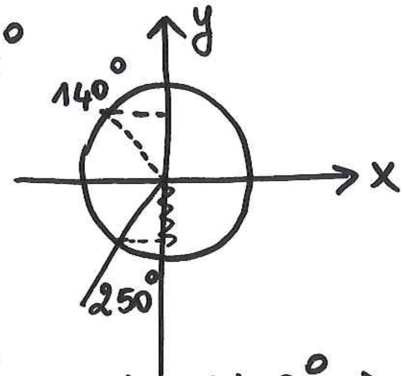
DOM.15

$$\sin(x) < \sin(2x)$$

1) $x = 80°$ $\quad \sin 80° > \sin 160°$ $\quad$ (NO)



2) $x = 250°$ $\quad \sin 250°$ (<0)

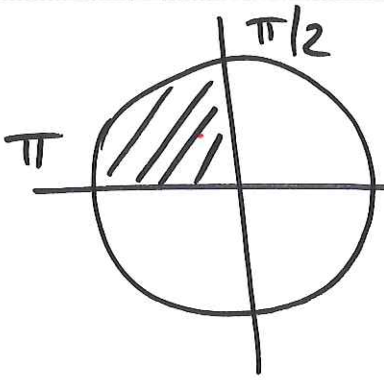


$$\sin 500° = \sin 140° > 0$$

$$\sin 250° < \sin 500° \quad \text{OK}$$

RISP. 2

DOM. 16



$$\boxed{\frac{\pi}{2} < \alpha < \pi}$$

$\cot g\, \alpha = \sqrt{3} - 2$

$\sin\alpha = ?$

$\underline{\sin\alpha > 0}$

$$\sin\alpha = \frac{1}{\pm\sqrt{1+\cot g^2\alpha}}$$

$$\sin\alpha = \frac{1}{\sqrt{1+(\sqrt{3}-2)^2}} =$$

$$= \frac{1}{\sqrt{1+3+4-4\sqrt{3}}} =$$

$$= \frac{1}{\sqrt{\underbrace{8-4\sqrt{3}}}} =$$

$2(4-2\sqrt{3})$

$\downarrow$

$3+1-2\sqrt{3}$

$(\sqrt{3}-1)^2$ Att! <u>non</u> $(1-\sqrt{3})$

$$\sin\alpha = \frac{1}{\sqrt{2\cdot(\sqrt{3}-1)^2}} =$$

$$= \frac{1}{(\sqrt{3}-1)\cdot\sqrt{2}} =$$

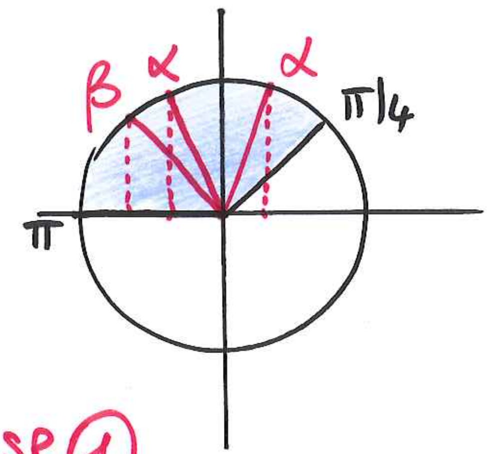
$$= \frac{1}{\sqrt{6}-\sqrt{2}} \cdot \frac{\sqrt{6}+\sqrt{2}}{\sqrt{6}+\sqrt{2}} =$$

$$= \frac{\sqrt{6}+\sqrt{2}}{4}$$

RISP. 2

DOM. 17

$$\frac{\pi}{4} \leq \alpha < \beta \leq \pi$$



$$\cos\alpha > \cos\beta$$

RISP. 1

DOM. 18

$$\left(\sin\frac{\pi}{12} - \cos\frac{\pi}{12}\right)^2 =$$

$$= \underbrace{\sin^2\frac{\pi}{12} + \cos^2\frac{\pi}{12}}_{1} - \underbrace{2 \cdot \sin\frac{\pi}{12} \cdot \cos\frac{\pi}{12}}_{\sin\frac{\pi}{6}} =$$

$$= 1 - \sin\frac{\pi}{6} =$$

$$= 1 - \frac{\sqrt{3}}{2}$$

RISP. 3