

Resolução Ficha extra preparação exame

1 (c) $1000^{10} = \underbrace{1000 \times 1000 \times \dots \times 1000}_{10 \text{ vezes}} \rightarrow 3 \times 10 \text{ zeros} = 30 \text{ zeros}$

2 $2\sqrt{3}(\sqrt{6} + 3\sqrt{3}) - \sqrt{18} - 2\sqrt{18} + 6(\sqrt{3})^2 - \sqrt{18} = \sqrt{18} + 6 \times 3 = \sqrt{18} + 18$

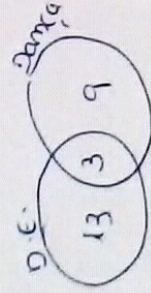
3 (c) $-k^3$
 $k < 0 \rightarrow k^3 < 0 \rightarrow -k^3 > 0$

4 (D) $1,5 = \frac{15}{10} = \frac{3}{2}$ loop, o inverso $\cdot \frac{1}{\frac{3}{2}}$

5 são todas verdadeiras (Houve um erro no enunciado)

6 $16 + 12 = 28$ afididades } $28 - 25 = 3 \rightarrow$ loop existem
 25 alunos

3 alunos que praticam as duas modalidades



R: 13 alunos

7 (A) $2x^2 - 4x = -3 \Leftrightarrow 2x^2 - 4x + 3 = 0$ $a = 2$ $b = -4$ $c = 3$
 $\Delta = b^2 - 4ac \Leftrightarrow \Delta = (-4)^2 - 4 \times 2 \times 3 \Leftrightarrow$
 $\Delta = 16 - 24 = -8 < 0$

8 Área sólido - Área base = Área lateral do cubo.

$124 - 60 = 4x^2 \Leftrightarrow 64 = 4x^2 \Leftrightarrow 16 = x^2 \Leftrightarrow x = \sqrt{16} = 4$

$\overline{IE} = \overline{IA} - x \Leftrightarrow \overline{IE} = 7 - 4 = 3$ R: $\overline{IE} = 3 \text{ cm}$

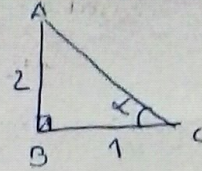
9 $S_{16} = (16 - 2) \times 180 = 2520^\circ$

10 1. resolução:
 $\alpha = 360 : 8 = 45^\circ$
 Soma dos ângulos

2. resolução $S_8 = (8 - 2) \times 180 = 1080$
 cada ângulo interno = $\frac{1080}{8} = 135$
 $\alpha = 180 - 135 = 45^\circ$

(11) 1ª resolução

Seja (ABC) um triângulo retângulo com um ângulo α ,
tal que $\operatorname{tg} \alpha = 2$



$$\overline{AC}^2 = \overline{AB}^2 + \overline{BC}^2 \quad (*)$$

$$\overline{AC}^2 = 2^2 + 1^2 \quad (**)$$

$$\overline{AC}^2 = 5 \quad (***)$$

$$\overline{AC} = \sqrt{5}$$

$$\text{logo } \cos \alpha = \frac{1}{\sqrt{5}} = \frac{1 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} = \frac{\sqrt{5}}{5}$$

2ª resolução

$$\left\{ \begin{array}{l} \operatorname{tg} \alpha = 2 \\ \operatorname{sen}^2 \alpha + \operatorname{cos}^2 \alpha = 1 \end{array} \right. \left\{ \begin{array}{l} \frac{\operatorname{sen} \alpha}{\operatorname{cos} \alpha} = 2 \\ \operatorname{sen}^2 \alpha + \operatorname{cos}^2 \alpha = 1 \end{array} \right. \left\{ \begin{array}{l} \operatorname{sen} \alpha = 2 \operatorname{cos} \alpha \\ (2 \operatorname{cos} \alpha)^2 + \operatorname{cos}^2 \alpha = 1 \end{array} \right.$$

$$\left\{ \begin{array}{l} 4 \operatorname{cos}^2 \alpha + \operatorname{cos}^2 \alpha = 1 \\ 5 \operatorname{cos}^2 \alpha = 1 \end{array} \right. \left\{ \begin{array}{l} \operatorname{cos}^2 \alpha = \frac{1}{5} \\ \operatorname{cos} \alpha = \sqrt{\frac{1}{5}} = \frac{1}{\sqrt{5}} \end{array} \right.$$

(12) (B) 40°

A soma dos ângulos opostos de um quadrilátero inscrito
numa circunferência é sempre 180°

$$110 + x + 30 = 180 \quad \Leftrightarrow \quad x = 40^\circ$$

(13) (13.1) $\overline{AC} = \sqrt{9+4} = \sqrt{13}$ $E = -2 + \sqrt{3} + \sqrt{13}$

(13.2) $F = B - \overline{BO}$ $B = A + 3 = -2 + 3 + \sqrt{3} = 1 + \sqrt{3}$

$$F = 1 + \sqrt{3} - \sqrt{13}$$

(13.3) $\operatorname{tg} \widehat{ACB} = \frac{3}{2} \quad \Leftrightarrow \quad \widehat{ACB} = \operatorname{tg}^{-1} \left(\frac{3}{2} \right) \approx 56^\circ$

$$(14) (\sin\theta - \cos\theta)^2 + 10 = \sin^2\theta - 2\sin\theta\cos\theta + \cos^2\theta + 10 =$$

$$= \underbrace{\sin^2\theta + \cos^2\theta}_{1} + 10 - 2 \times 0,48 = 1 + 10 - 0,96 = 10,04$$

$$(15) \widehat{BEC} = \frac{\widehat{BC} + \widehat{AD}}{2} = \frac{100}{2} = 50^\circ \text{ Logo } \widehat{CED} = 180^\circ - 50^\circ = 130^\circ$$

$$(16) f(x) = g(x) + 2^{-1} \Leftrightarrow x^2 + 2 = 3x - 1 + 2^{-1} \quad (*)$$

$$x^2 + 2 - 3x + 1 - \frac{1}{2} = 0 \Leftrightarrow x^2 - 3x + 3 - \frac{1}{2} = 0 \quad (**)$$

$$2x^2 - 6x + 6 - 1 = 0 \Leftrightarrow 2x^2 - 6x + 5 = 0 \quad (***) \quad x = \frac{6 \pm \sqrt{(-6)^2 - 4 \times 2 \times 5}}{2 \times 2}$$

$\Leftrightarrow x = \frac{6 \pm \sqrt{-4}}{2}$ $\Delta \gamma$. impossível c.s. \emptyset

$$(17) (17-1) \quad g(-1) = f(2 \times (-1)^2) = f(2 \times 1) = f(2) = 3 \times 2 = 6$$

$$(17-2) \quad g(a) = f(2a^2) = 3 \times 2a^2 = 6a^2 \rightarrow \text{opção (c)}$$

$$(18) (18-1) \quad 20^\circ \text{ termo} = 22 \text{ pois } \begin{matrix} 1^\circ \rightarrow 3 \\ 2^\circ \rightarrow 4 \\ 3^\circ \rightarrow 5 \\ m^\circ \rightarrow m+2 \end{matrix}$$

$$(18-2) \quad f(22) = 2 \times 22 - 1 = 44 - 1 = 43$$

$$(18-2) \quad f(13) \times (20 \times 10^{13}) = (2 \times 13 - 1) \times (20 \times 10^{13}) = 25 \times 20 \times 10^{13}$$

$$= 500 \times 10^{13} = 5 \times 10^{15}$$

$$(18-3) \quad f(10) = 2 \times 10 - 1 \Leftrightarrow f(10) = 19 \text{ Logo } m+2 = 19 \Leftrightarrow m = 17$$

$$(18-4) \quad \begin{matrix} \text{quadrados} \rightarrow m+2 \\ \text{círculos} \rightarrow m \end{matrix} \text{ termo geral: } m+2+m = 2m+2$$

$$(18-5) \quad V_m = 36 \text{ Logo } 36 = 2m+2 \Leftrightarrow 34 = 2m \Leftrightarrow m = 17$$

FIM.