

CORREÇÃO TESTE 3 - 2021/2022
Matemática 9ºano

Turmas 1 e 4

1.1 $2x^2 - 5x + 2 = 0$;

Fórmula resolvente: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$a = 2$, $b = -5$, $c = 2$

$$\Leftrightarrow x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 2 \times 2}}{2 \times 2}$$

$$\Leftrightarrow x = \frac{5 \pm \sqrt{25 - 16}}{4}$$

$$\Leftrightarrow x = \frac{5 \pm \sqrt{9}}{4}$$

$$\Leftrightarrow x = \frac{5 \pm 3}{4} \Leftrightarrow x = \frac{5 + 3}{4} \vee x = \frac{5 - 3}{4}$$

$$\Leftrightarrow x = \frac{8}{4} \vee x = \frac{2}{4} \Leftrightarrow x = 2 \vee x = \frac{1}{2} \quad S = \left\{ \frac{1}{2}, 2 \right\}$$

1.2 $(2x + 1)^2 = -3 - x$

$$\Leftrightarrow 4x^2 + 4x + 1 = -3 - x$$

$$\Leftrightarrow 4x^2 + 4x + 1 + 3 + x = 0$$

$$\Leftrightarrow 4x^2 + 5x + 4 = 0 \quad ; \quad a = 4 \quad , \quad b = 5 \quad , \quad c = 4$$

$$\Leftrightarrow x = \frac{-5 \pm \sqrt{5^2 - 4 \times 4 \times 4}}{2 \times 4}$$

$$\Leftrightarrow x = \frac{-5 \pm \sqrt{25 - 64}}{8}$$

$$\Leftrightarrow x = \frac{-5 \pm \sqrt{-39}}{8} \text{ equação impossível} \quad S = \{ \}$$

1.3 $x^2 = 3(2x - 3)$

$$\Leftrightarrow x^2 = 6x - 9$$

$$\Leftrightarrow x^2 - 6x + 9 = 0$$

$$\Leftrightarrow (x - 3)^2 = 0$$

$$\Leftrightarrow (x - 3)(x - 3) = 0$$

$$\Leftrightarrow x - 3 = 0$$

$$\Leftrightarrow x = 3 \quad S = \{ 3 \}$$

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1.4 $\frac{x^2+3}{4} + \frac{x-7}{2} (\times 2) = 1(\times 4)$ reduzir ao mesmo denominador

$$\Leftrightarrow x^2 + 3 + 2x - 14 = 4$$

$$\Leftrightarrow x^2 + 3 + 2x - 14 - 4 = 0$$

$$\Leftrightarrow x^2 + 2x - 15 = 0 \quad ; \quad a = 1, \quad b = 2, \quad c = -15$$

$$\Leftrightarrow x = \frac{-2 \pm \sqrt{2^2 - 4 \times 1 \times (-15)}}{2 \times 1}$$

$$\Leftrightarrow x = \frac{-2 \pm \sqrt{4 + 60}}{2}$$

$$\Leftrightarrow x = \frac{-2 \pm \sqrt{64}}{2}$$

$$\Leftrightarrow x = \frac{-2 \pm 8}{2} \Leftrightarrow x = \frac{-2 + 8}{2} \vee x = \frac{-2 - 8}{2}$$

$$\Leftrightarrow x = \frac{6}{2} \vee x = \frac{-10}{2} \Leftrightarrow x = 3 \vee x = -5 \quad S = \{-5, 3\}$$

2. Opção A

3.1) BCD, LMN

3.3) BCD, MND

3.5) MC, BCD

3.7) AI, BH

3.2) BCD, IJC

3.4) LM, BCD

3.6) BC, LM

4.1 $raio = \frac{diâmetro}{2} = 4 \text{ cm}$

$$A_{base} = \pi r^2 = \pi \times 4^2 = 16\pi \text{ cm}^2$$

$$V_{cone} = \frac{16\pi \times 10}{3} = \frac{160\pi}{3} \text{ cm}^3$$

4.2 $raio = \frac{diâmetro}{2} = 3 \text{ cm}$

$$A_{base} = \pi r^2 = \pi \times 3^2 = 9\pi \text{ cm}^2$$

$$V_{cilindro} = 9\pi \times 4 = 36\pi \text{ cm}^3$$

5.1 $lado = \frac{64}{4} = 16 \text{ cm}$

$$A_{base} = 16 \times 16 = 256 \text{ cm}^2$$

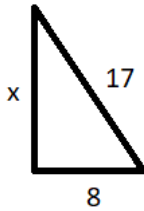
$$A_{lateral} = 4 \times A_{\Delta} = 4 \times \frac{b \times h}{2} = 4 \times \frac{16 \times 17}{2} = 4 \times \frac{272}{2} = 4 \times 136 = 544 \text{ cm}^2$$

$$A_{total} = 256 + 544 = 800 \text{ cm}^2$$

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5.2



$$x^2 + 8^2 = 17^2$$

$$\Leftrightarrow x^2 = 17^2 - 8^2$$

$$\Leftrightarrow x = \pm\sqrt{225} \Leftrightarrow x = 15 \text{ cm}$$

$$V_{\text{pirâmide}} = \frac{256 \times 15}{3} = 1280 \text{ cm}^3$$

6.1 $\text{raio} = \frac{\text{diâmetro}}{2} = 9 \text{ cm}$

$$V_{\text{esfera}} = \frac{4}{3}\pi \times 9^3 = \frac{4}{3}\pi \times 729 = \frac{2916\pi}{3} \approx 3053,63 \text{ cm}^3$$

6.2 $A_{\text{base}} = \pi r^2 = \pi \times 9^2 = 81\pi \text{ cm}^2$

$$V_{\text{cilindro}} = 81\pi \times 18 = 1458\pi \text{ cm}^3$$

$$V_{\text{não ocupado}} = V_{\text{cilindro}} - V_{\text{esfera}} = 1458\pi - 3053,63 \approx 1526,8 \text{ cm}^3$$

7.1 Opção B

7.2 O sólido é um prisma triangular.

$$A_{\text{base}} = A_{\Delta} = \frac{78 \times 58,5}{2} = 2281,5 \text{ cm}^2$$

$$V_{\text{prisma triangular}} = 445\,000$$

$$\Leftrightarrow 2281,5 \times x = 445\,000$$

$$\Leftrightarrow x = \frac{445\,000}{2281,5} \approx 195,047 \text{ cm}$$

$$A_{\text{lateral}} = 97,5 \times 195,047 + 78 \times 195,047 + 58,5 \times 195,047 \approx 45\,641 \text{ cm}^2$$

8.1 $V_{\text{pirâmide}} = 72$

$$\Leftrightarrow \frac{a \times a \times a}{3} = 72$$

$$\Leftrightarrow a^3 = 72 \times 3$$

$$\Leftrightarrow a^3 = 216$$

$$\Leftrightarrow a = \sqrt[3]{216} = 6 \text{ cm}$$

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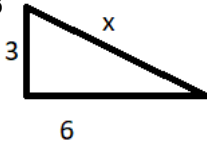
Turmas 1 e 4

8.2 $V_{cubo} = a^3 = 6^3 = 216 \text{ cm}^3$

$V_{pirâmide} = 72 \text{ cm}^3$

$V_{não\ ocupado} = V_{cubo} - V_{pirâmide} = 216 - 72 = 144 \text{ cm}^3$

8.3



$$x^2 = 3^2 + 6^2$$

$$\Leftrightarrow x^2 = 9 + 36$$

$$\Leftrightarrow x = \pm\sqrt{45} \Leftrightarrow x = \sqrt{45} = \sqrt{9 \times 5} = \sqrt{3^2 \times 5} = 3\sqrt{5} \text{ cm}$$

$$A_{lateral} = 4 \times A_{\Delta} = 4 \times \frac{b \times h}{2} = 4 \times \frac{6 \times 3\sqrt{5}}{2} = 4 \times \frac{18\sqrt{5}}{2} = 4 \times 9\sqrt{5} = 36\sqrt{5} \text{ cm}^2$$

$$A_{total} = A_{base} + A_{lateral} = 36 + 36\sqrt{5} \text{ cm}^2$$

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