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Turma: CTII 348

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Disciplina: Matemática

IFSP - Câmpus Cubatão

Tarefa Básica 01

Área de Polígono

(Fotos nas páginas seguintes)

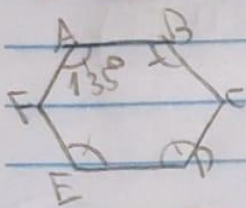
Exercício 1:

4º Bimestre

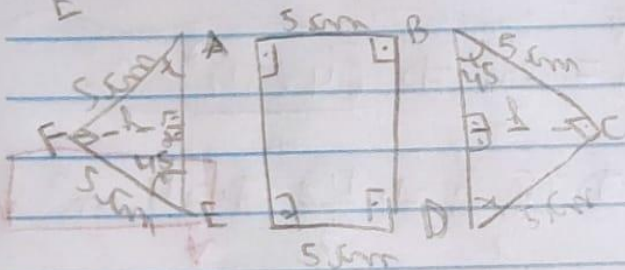
Materia 1 - Círculo de Polígonos

Sarela Brasileira

1-1) $l = 5 \text{ cm}$ | $A, B, D, E = 135^\circ$



$$\begin{aligned} \text{Soma} &= (n-2) \cdot 180^\circ \\ \text{ângulos internos} &= (6-2) \cdot 180^\circ \\ &= 720^\circ \end{aligned} \quad \left\{ \begin{array}{l} A+B+D+E = 540^\circ \\ F+C = 180^\circ \end{array} \right.$$



$$\begin{aligned} AE^2 &= 5^2 + 5^2 \\ AE &= \sqrt{50} \\ AE &= \sqrt{2 \cdot 5^2} \Rightarrow \boxed{AE = 5\sqrt{2}} \end{aligned}$$

$$\begin{aligned} S_{ABDE} &= 5\sqrt{2} \cdot 5\sqrt{2} \\ S_{ABDE} &= 25 \cdot 2 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} 45^\circ &= \frac{h}{5} \\ \frac{\sqrt{2}}{2} &= \frac{h}{5} \Rightarrow 2h = 5\sqrt{2} \\ \boxed{h = \frac{5\sqrt{2}}{2}} \end{aligned}$$

$$S_{AEF} = (5\sqrt{2}) \cdot \left(\frac{5\sqrt{2}}{2}\right)$$

$$S_{AEF} = \frac{50}{2} \Rightarrow \boxed{S_{AEF} = 25 \text{ cm}^2}$$

$$\begin{aligned} S_{ABCDEF} &= 25\sqrt{2} + 2 \cdot \left(\frac{25}{2}\right) \\ &= 25\sqrt{2} + 25 \\ &= \boxed{25(\sqrt{2} + 1) \text{ cm}^2} \end{aligned}$$

haja E.

Exercícios 2 e 3:

2-1 R do Δ equilátero = diagonal do \square

Área do $\square = 16\sqrt{3} \text{ m}^2$. $d = \text{diagonal do } \square$

$$S_{\Delta} = \frac{l^2 \sqrt{3}}{4} \Rightarrow 16\sqrt{3} = \frac{l^2 \sqrt{3}}{4} \Rightarrow 64\sqrt{3} = \frac{l^2 \sqrt{3}}{1} \Rightarrow l^2 = 64 \Rightarrow l = 8$$

$$\Rightarrow \frac{64\sqrt{3}}{4} = l^2 \Rightarrow l^2 = 64 \Rightarrow l = \sqrt{64} \Rightarrow l = 8$$

$$h_{\Delta} = \frac{l\sqrt{3}}{2} \Rightarrow h = \frac{8\sqrt{3}}{2} \Rightarrow 4\sqrt{3}$$

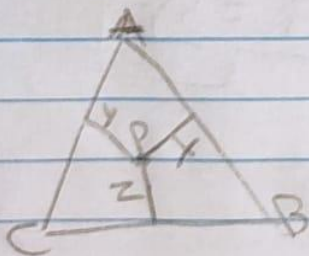
$$d = h \Rightarrow d = 4\sqrt{3}$$

$$S_{\square} = \frac{d^2}{2} \Rightarrow \frac{(4\sqrt{3})^2}{2} \Rightarrow \frac{16 \cdot 3}{2} \Rightarrow \frac{48}{2} \Rightarrow 24 \text{ m}^2$$

~ 1,5

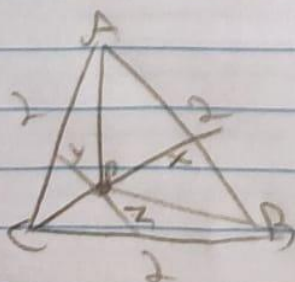
Letra B.

3-1 $l = 2$ $S_{\Delta} = \sqrt{3}$



$$S_{APB} + S_{BPC} + S_{APC} = S_{ABC} = \sqrt{3}$$

$$S_{APB} = \frac{2 \cdot x}{2} \quad S_{BPC} = \frac{2 \cdot z}{2} \quad S_{APC} = \frac{2 \cdot y}{2}$$



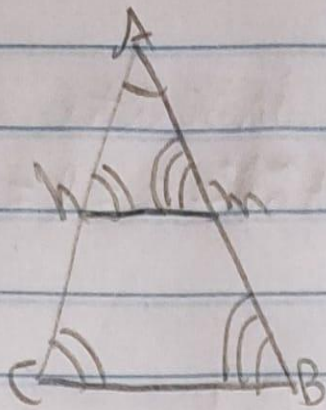
$$\frac{2x}{2} + \frac{2z}{2} + \frac{2y}{2} = \sqrt{3}$$

$$x + y + z = \sqrt{3}$$

Letra B.

Exercícios 4 e 5:

4-1)



$$S_{ABC} = 96 \text{ cm}^2$$

$$MN = \frac{1}{2} BC$$

$$\triangle ABC \sim \triangle AMN$$

$$\frac{S_{AMN}}{S_{ABC}} = \frac{1}{4}$$

$$S_{BMNC} = S_{ABC} - S_{AMN}$$

$$S_{BMNC} = 96 - \frac{1}{4} \cdot 96$$

$$S_{AMN} = \frac{1}{4} S_{ABC}$$

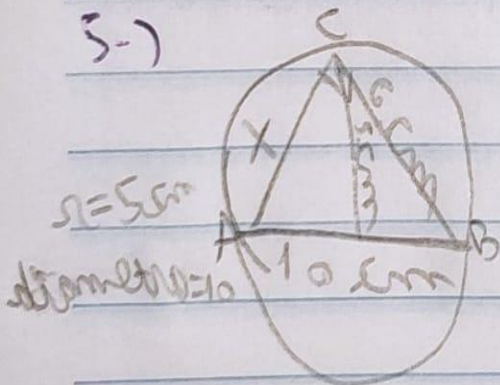
$$S_{BMNC} = 96 - 24$$

$$S_{AMN} = \frac{1}{4} \cdot 96 \text{ cm}^2$$

$$S_{BMNC} = 72 \text{ cm}^2$$

Alm

5-1)



$$10^2 = 6^2 + x^2$$

$$100 = 36 + x^2$$

$$x^2 = 64$$

$$x = 8 \text{ cm}$$

$$S_{ABC} = \frac{b \cdot h}{2}$$

$$S_{ABC} = \frac{8 \cdot 6}{2}$$

$$S_{ABC} = \frac{48}{2} \Rightarrow 24 \text{ cm}^2$$

Letra A 4- $S_{ABC} = 24 \text{ cm}^2$

Exercício 6:

6 ->



Polígono regular inscrito na
circunferência, então: $r = l = 4 \text{ cm}$
 $a = \text{apótema}$

$$a = \frac{r \sqrt{3}}{2} \Rightarrow a = \frac{4\sqrt{3}}{2} \Rightarrow \boxed{a = 2\sqrt{3}}$$

$$S_D = \frac{D \cdot a}{2} \Rightarrow \frac{4 \cdot (2\sqrt{3})}{2} \Rightarrow 2(2\sqrt{3}) \Rightarrow \boxed{S_D = 4\sqrt{3}}$$

$$\square: (4\sqrt{3})^2 = 16 \cdot 3 \Rightarrow \boxed{48}$$