

QUESTÕES OBJETIVAS

QUESTÃO 16

$$a_e = \frac{360^\circ}{n}; \text{ como } n = 12 \text{ (DODECÁGONO)}$$

$$a_e = \frac{360^\circ}{12} = 30^\circ$$

$$a_i + a_e = 180^\circ \Rightarrow a_i = 180^\circ - 30^\circ$$

$$\therefore a_i = 150^\circ \quad \text{(D)}$$

QUESTÃO 17



$$a_i = 60^\circ + 40^\circ + 60^\circ$$

$$a_i = 160^\circ$$

$$a_i + a_e = 180^\circ$$

$$a_e = 180^\circ - 160^\circ$$

$$a_e = 20^\circ$$

$$a_e = \frac{360^\circ}{n} \Rightarrow n = \frac{360^\circ}{20^\circ}$$

$$\therefore n = 18$$

(E)

QUESTÃO 18

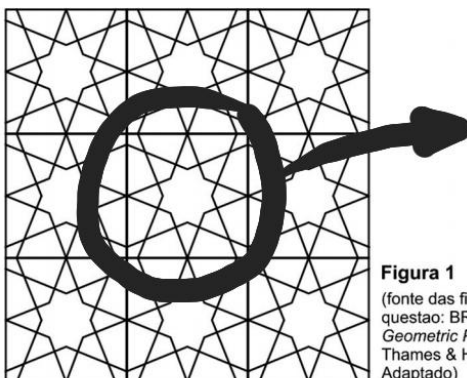
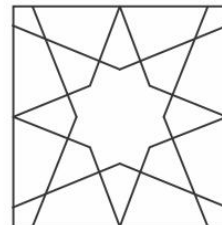


Figura 1

(fonte das figuras desta questão: BROUG, Eric. *Islamic Geometric Patterns*. Londres. Thames & Hudson, 2008. Adaptado)



∴ E

QUESTÃO 19

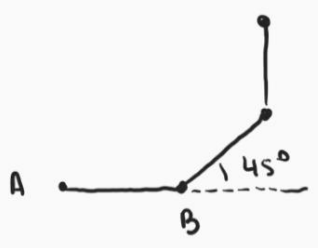


Diagram showing a path starting at point A, moving horizontally to point B. From B, the path turns 45 degrees upwards and to the right. From that point, it turns 90 degrees upwards to a vertical segment.

$$a_e = 45^\circ$$

$$a_e = \frac{360^\circ}{n} \Rightarrow n = \frac{360^\circ}{45^\circ}$$

$$\therefore n = 8 \quad \text{(C)}$$

QUESTÃO 20

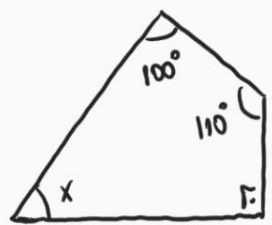


Diagram showing a quadrilateral with interior angles of 100° , 110° , 90° , and x° .

$$x + 100^\circ + 110^\circ + 90^\circ = 360^\circ$$

$$x + 300^\circ = 360^\circ$$

$$\therefore x = 60^\circ \quad \text{(B)}$$

QUESTÃO 21

Circuncentro \Rightarrow Ponto de encontro das mediatrizes do triângulo.

\therefore (D)

QUESTÕES DISCURSIVAS

QUESTÃO 09

$$\begin{cases} x + 20^\circ + 2y + 10^\circ = 180^\circ \Rightarrow x + 2y = 150^\circ \\ x + 3y - 15^\circ = 180^\circ \Rightarrow x + 3y = 195^\circ \end{cases}$$

$$y = 45^\circ \quad \begin{matrix} x = 150^\circ - 90^\circ \\ x = 60^\circ \end{matrix}$$

$$\therefore x = 60^\circ; y = 45^\circ; \hat{A} = 80^\circ; \hat{B} = 100^\circ$$

$$\hat{C} = 120^\circ \text{ e } \hat{D} = 60^\circ$$

QUESTÃO 10

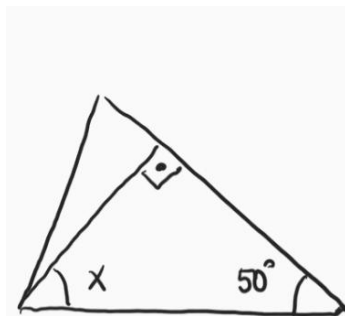
$$a_i = 150^\circ \Rightarrow a_e = 30^\circ$$

$$30^\circ = \frac{360^\circ}{n} \Rightarrow n = 12$$

$$\therefore n = 12 \text{ e } d = 54$$

$$d = \frac{12 \cdot (12 - 3)}{2} = \frac{12 \cdot 9}{2} = 54$$

QUESTÃO 11



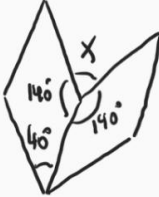
$$x + 50^\circ + 90^\circ = 180^\circ$$

$$x = 40^\circ$$

$$\therefore x = 40^\circ$$

QUESTÃO 12

$9\alpha = 360^\circ$
 $\alpha = 40^\circ$



$140^\circ + 140^\circ + x = 360^\circ$
 $x = 360^\circ - 280^\circ$
 $x = 80^\circ$

$\therefore x = 80^\circ$

QUESTÃO 13

n LADOS \rightarrow d DIAGONAIS
 $n+3$ LADOS \rightarrow $d+21$ DIAGONAIS

$$d+21 = \frac{(n+3) \cdot (n+3-3)}{2}$$

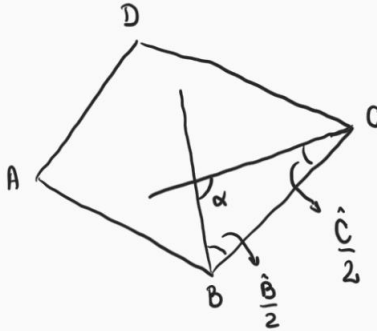
$$n(n-3) + 42 = (n+3) \cdot n$$

$$\cancel{n^2} - 3n + 42 = \cancel{n^2} + 3n$$

$6n = 42$
 $n = 7$

$\therefore 7$ LADOS.

QUESTÃO EXTRA



$100^\circ + 70^\circ + \hat{B} + \hat{C} = 360^\circ$
 $\hat{B} + \hat{C} = 190^\circ$

$$\alpha + \frac{\hat{B}}{2} + \frac{\hat{C}}{2} = 180^\circ \Rightarrow \alpha + 95^\circ = 180^\circ$$

$$\alpha = 85^\circ$$

$\therefore \alpha = 85^\circ$