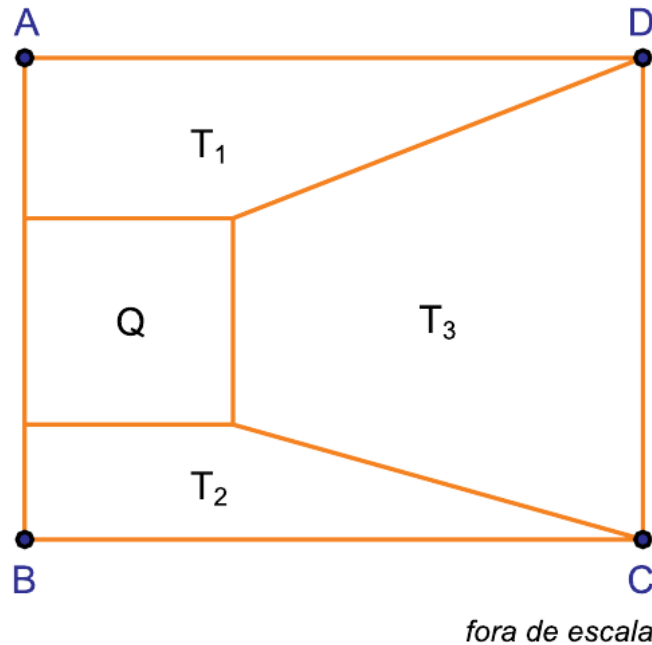


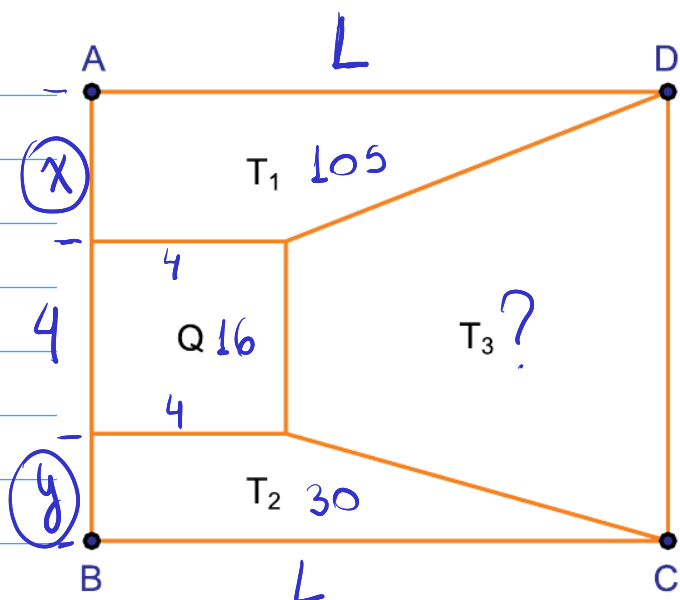
QUESTÃO 15

Um retângulo ABCD foi dividido em um quadrado Q, de 16 cm^2 de área, nos trapézios T_1 e T_2 , de áreas respectivamente iguais a 105 cm^2 e 30 cm^2 , e no trapézio T_3 , conforme mostra a figura.



Sabendo que a medida do lado AD é igual ao dobro da medida do lado AB, a área do trapézio T_3 é

- (A) 361 cm^2 .
- (B) 187 cm^2 .
- (C) 241 cm^2 .
- (D) 137 cm^2 .
- (E) 299 cm^2 .



$$\frac{(L+4) \cdot x}{2} = 105$$

$$(L+4) \cdot x = 210$$

$$L+4 = \frac{210}{x}$$

$$\frac{(L+4) \cdot y}{2} = 30$$

$$(L+4) y = 60$$

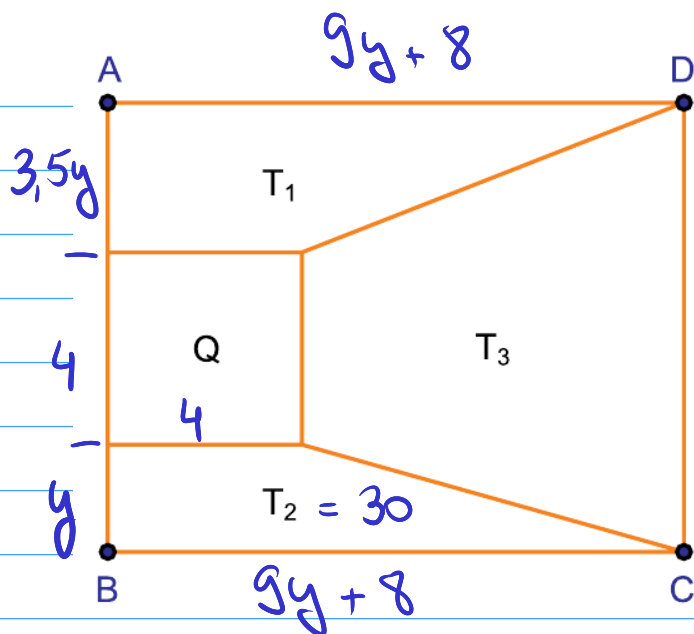
$$L+4 = \frac{60}{y}$$

$$\frac{210}{x} = \frac{60}{y}$$

$$60x = 210y$$

$$x = \frac{210y}{60}$$

$$x = 3,5y$$



$$AB = 3.5y + 4 + y$$

$$AB = 4.5y + 4$$

$$AD = 2(4.5y + 4)$$

$$A = 9y + 8$$

$$\frac{(9y + 8 + 4)y}{2} = 30$$

$$(9y + 12)y = 60$$

$$9y^2 + 12y - 60 = 0 \quad (\div 3)$$

$$3y^2 + 4y - 20 = 0$$

$$a = 3 \quad \Delta = b^2 - 4ac$$

$$b = 4 \quad \Delta = 4^2 - 4 \cdot 3 \cdot (-20)$$

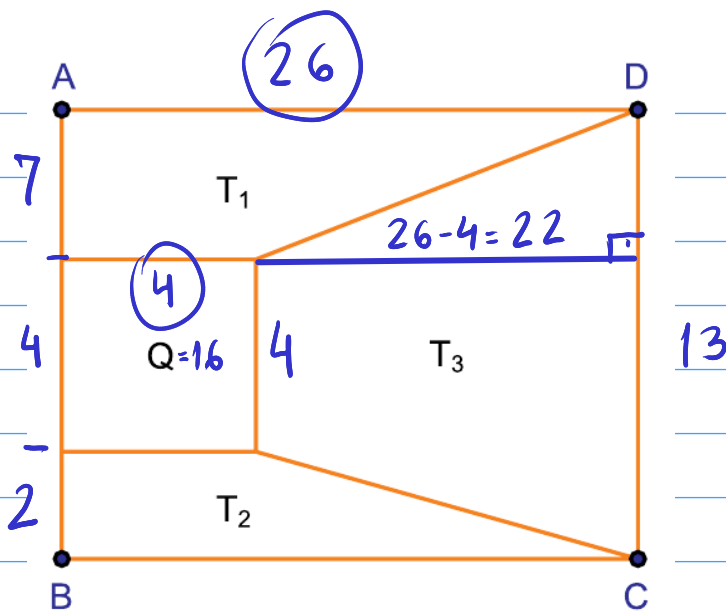
$$c = -20 \quad \Delta = 16 + 240$$

$$\Delta = 256$$

$$y = \frac{-b \pm \sqrt{\Delta}}{2 \cdot a}$$

$$y = \frac{-4 \pm \sqrt{256}}{2 \cdot 3} = \frac{-4 \pm 16}{6} \begin{cases} \frac{-20}{6} \\ \frac{12}{6} = 2 \end{cases}$$

$$\boxed{y = 2}$$



$$AB = 13 \rightarrow AD = 26$$

$$T_3 = \frac{(13 + 4) \cdot 22}{2} \quad 11$$

$$T_3 = 17 \cdot 11$$

$$T_3 = 187 \text{ cm}^2$$