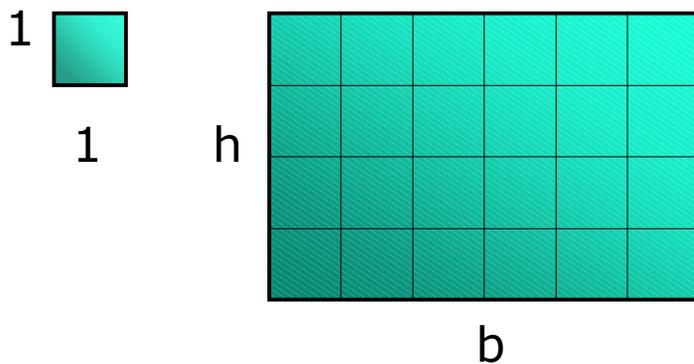


MATEMÁTICA

Aula 22

Áreas de Figuras Planas

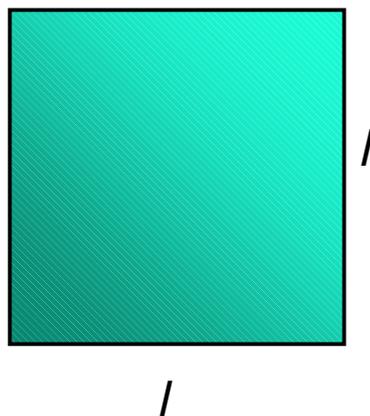
Retângulo



$$A_R = \frac{b}{1} \cdot \frac{h}{1}$$

$$A_R = b \cdot h$$

Quadrado

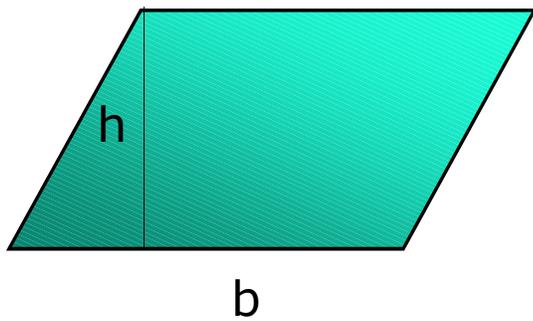


$$A_Q = b \cdot h$$

$$A_Q = l \cdot l$$

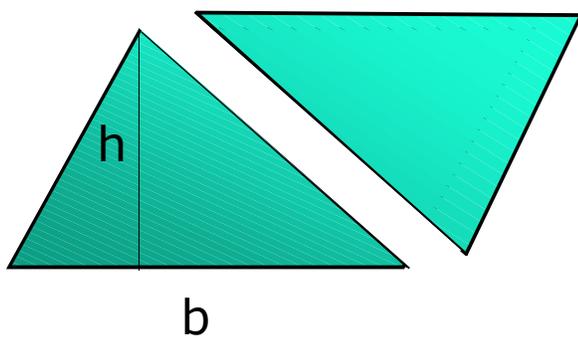
$$A_Q = l^2$$

Paralelogramo



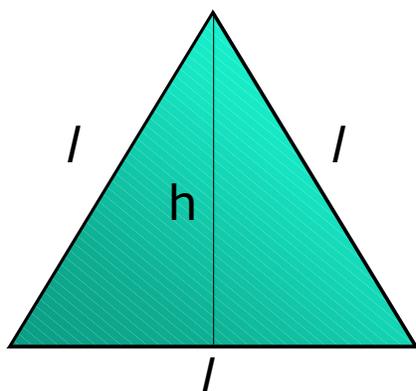
$$A_p = b \cdot h$$

Triângulo



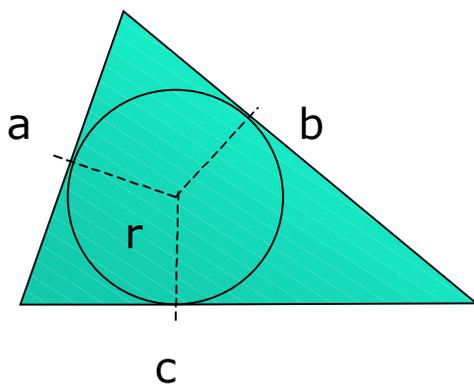
$$A_T = \frac{b \cdot h}{2}$$

Triângulo Equilátero



$$A_{\Delta} = \frac{l^2 \sqrt{3}}{4}$$

Triângulo

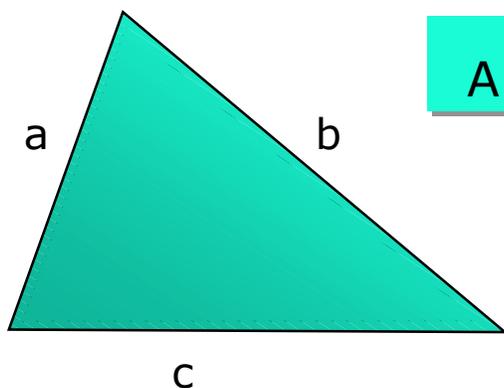


$$A = p \cdot r$$

onde

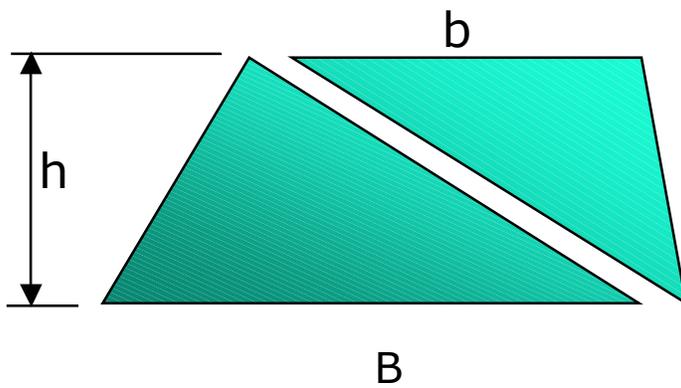
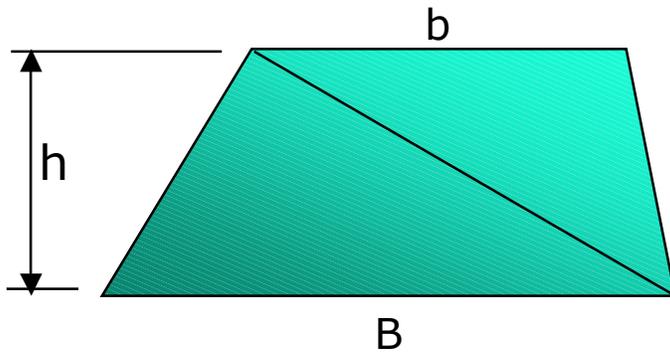
$$p = \frac{a + b + c}{2}$$

Triângulo



$$A = \sqrt{p(p - a)(p - b)(p - c)}$$

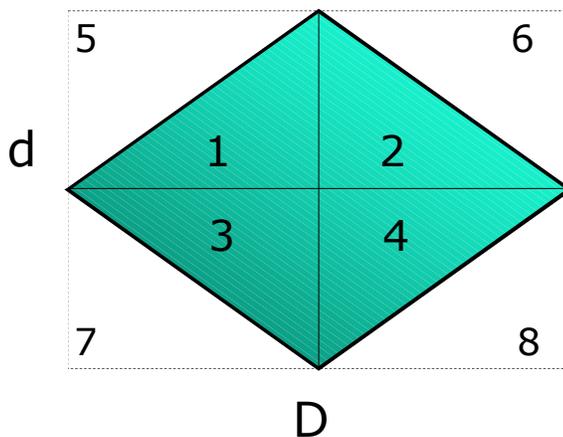
Trapézio



$$A_{\text{Trap}} = \frac{b \cdot h}{2} + \frac{B \cdot h}{2}$$

$$A_{\text{Trap}} = \frac{(b + B) \cdot h}{2}$$

Losango

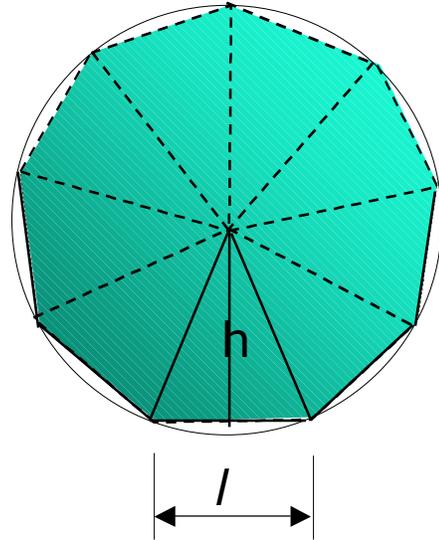


$$A_L = \frac{D \cdot d}{2}$$

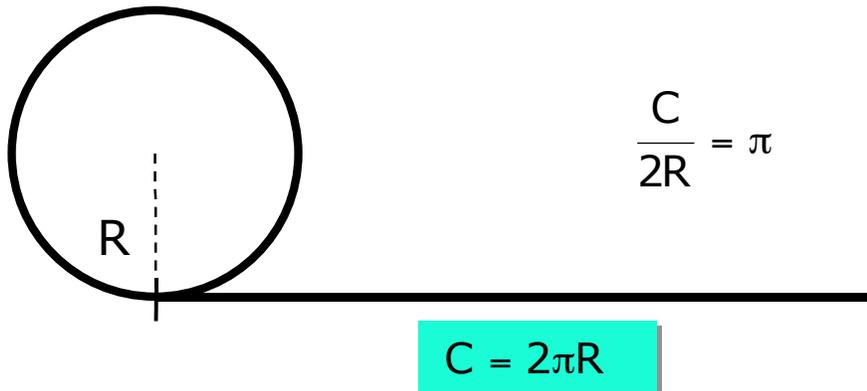
Polígono Regular

$$\left\{ \begin{array}{l} A_p = n \cdot \frac{l \cdot h}{2} \\ n \cdot l = 2p \text{ (perímetro)} \end{array} \right.$$

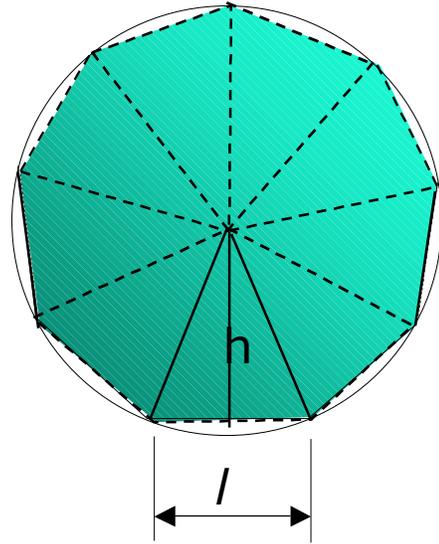
$$A_p = p \cdot h$$



Figuras Circulares



$$A_p = p \cdot h$$

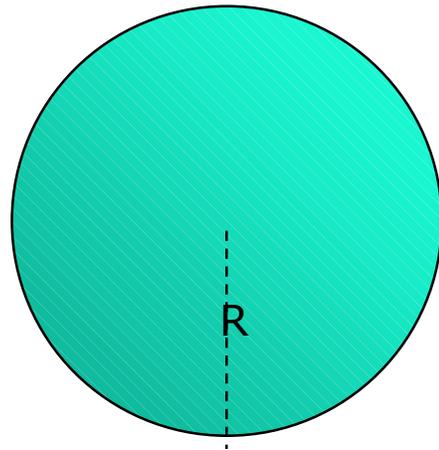


Círculo

$$\begin{cases} 2p \rightarrow 2\pi R \\ h \rightarrow R \end{cases}$$

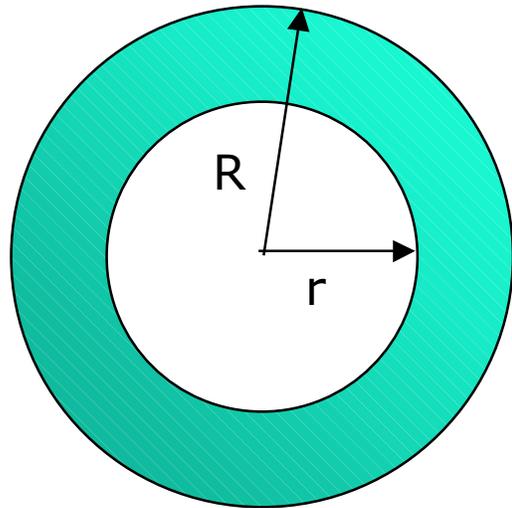
$$A_C = \pi R \cdot R$$

$$A_C = \pi R^2$$

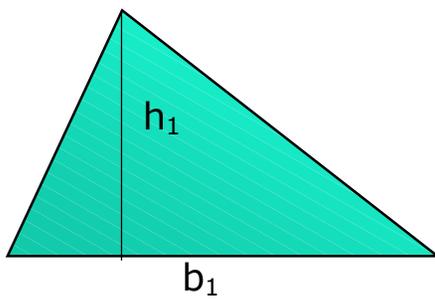


Coroa Circular

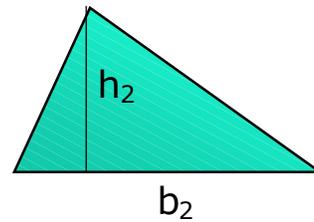
$$A_{\text{Coroa}} = \pi R^2 - \pi r^2$$



Triângulos Semelhantes

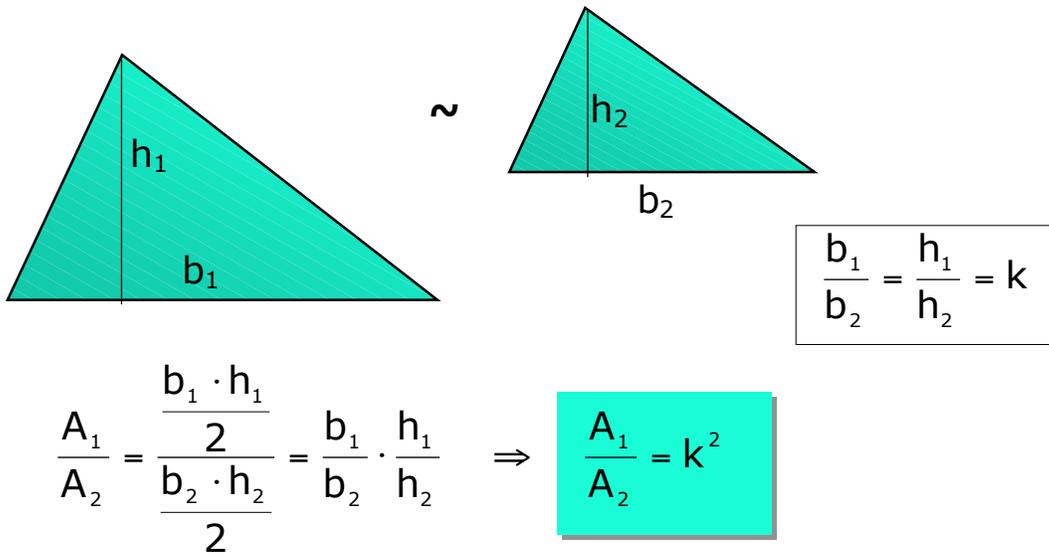


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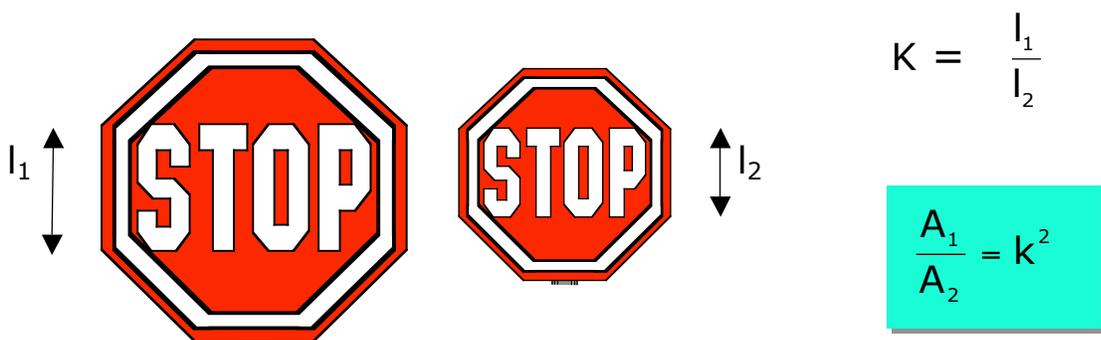


$$\frac{b_1}{b_2} = \frac{h_1}{h_2} = k$$

Figuras Semelhantes

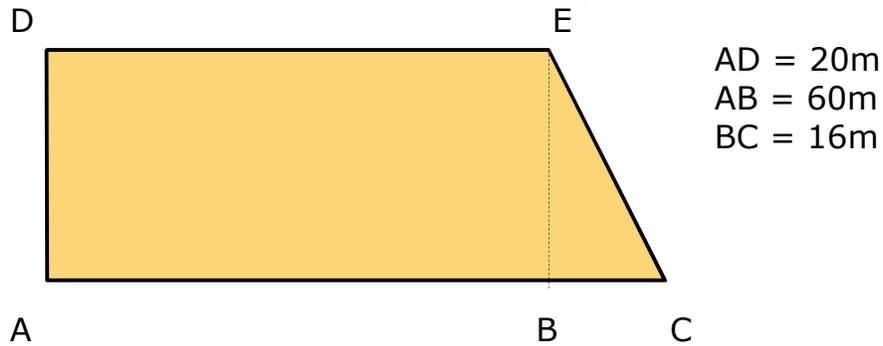


Razão entre Áreas



Exercícios

1) Dois irmãos herdaram um terreno com a seguinte forma e medidas:



Para dividir o terreno em duas partes de mesma área, eles usaram uma reta perpendicular a AB . Para que a divisão tenha sido feita corretamente, qual a distância dessa reta ao ponto A?

2)A área **S** de um triângulo pode ser calculada pela fórmula:

$$s = \sqrt{\mathbf{p} \cdot (\mathbf{p} - \mathbf{a}) \cdot (\mathbf{p} - \mathbf{b}) \cdot (\mathbf{p} - \mathbf{c})} , \text{ onde}$$

a, **b** e **c** são os comprimentos dos lados e **p** é o semiperímetro

- a) Calcule a área do triângulo cujos lados medem 21, 17 e 10cm.
- b) Calcule o comprimento da altura relativa ao lado que mede 21cm.

3) Um cavalo se encontra num cercado de pastagem, cuja forma é um quadrado com lado medindo 50m. Ele está amarrado a uma corda de 40m que está fixada num dos cantos do quadrado. Considerando $\pi = 3,14$, calcule a área, em metros quadrados, da região do cercado que o cavalo não conseguirá alcançar, por que está amarrado.

Respostas

1) 34m

2) a) 84m^2
b) 8m

3) $A = 1244\text{m}^2$