

3<sup>a</sup>  
SÉRIE

CANAL SEDUC-PI3



PROFESSOR (A):



DISCIPLINA:



CONTEÚDO:



TEMA GERADOR:



DATA:

ALEXANDRO  
KESLLER

MATEMÁTICA  
OFICINA

ÁLGEBRA

SAÚDE NA  
ESCOLA

07.06.2019

# ROTEIRO DE AULA

## GEOMETRIA ESPACIAL I

### ➤ Prismas

- Áreas e volumes

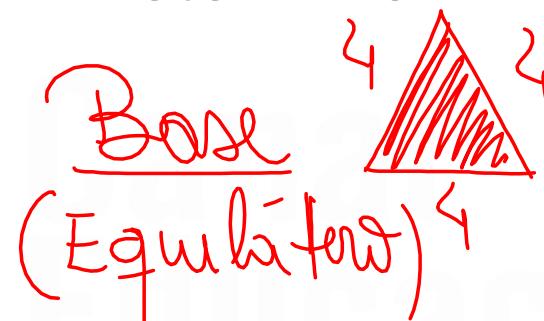
$$(m^2)$$
$$(m^3)$$

P/CSA!

## Exercício proposto

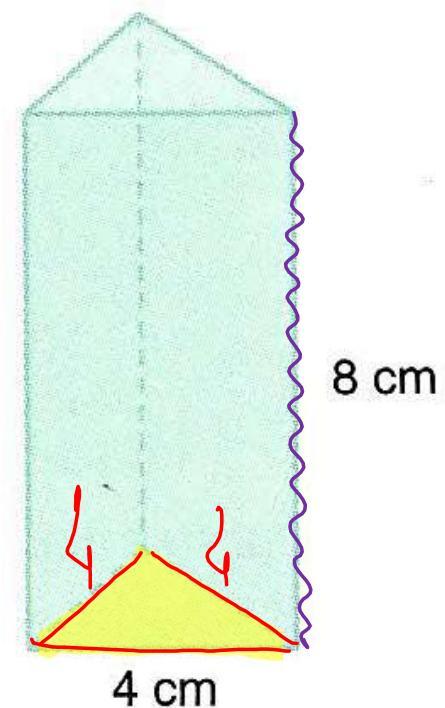
Em um prisma triangular regular, cada aresta lateral mede 8 cm e cada aresta da base mede 4 cm. Determine:

- a) A área de uma face lateral
- b) A área total desse prisma
- c) O volume desse prisma.

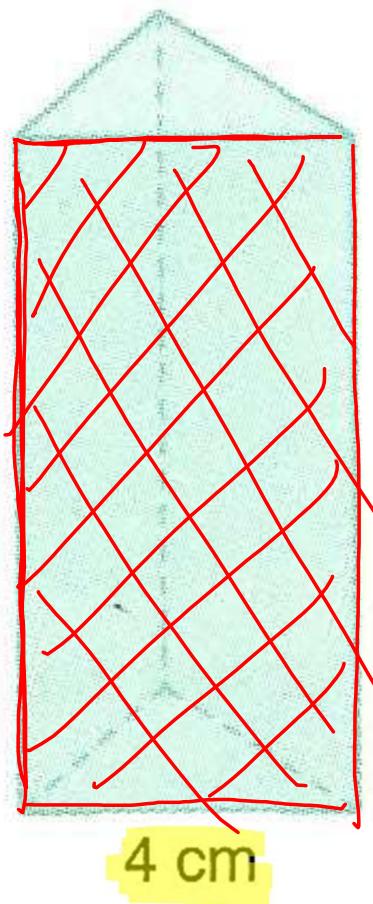


Triângulo equilátero

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



a) A área de uma face lateral



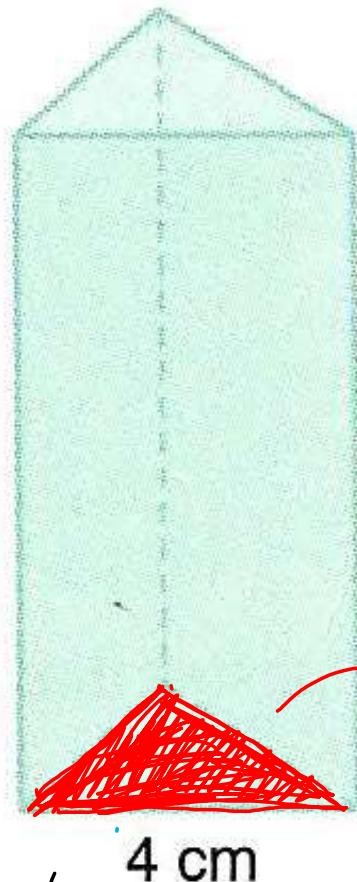
$$\text{Área (face lateral)} = 4 \cdot 8 = 32 \text{ cm}^2$$

The width of the front face is labeled as 1 cm, and the height of the prism is labeled as 1 cm, both with curly braces under the numbers.

ÁREA DO RETÂNGULO

$$A_{\text{retângulo}} = b \cdot h$$

b) A área total desse prisma



$$A_{\text{face}} = 32 \text{ cm}^2 \Rightarrow A_{\text{LATERAL}} = 3 \cdot 32 = 96 \text{ cm}^2$$

$$A_{\text{TOTAL}} = 2 \cdot A_{\text{BASE}} + A_{\text{LATERAL}}$$

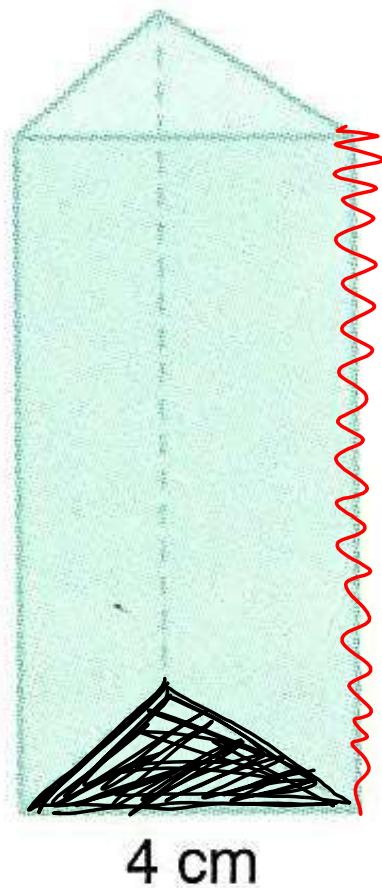
$$A_T = 2 \cdot 4\sqrt{3} + 96 \Rightarrow \underline{\underline{(8\sqrt{3} + 96) \text{ cm}^2}}$$

8 cm

Base  $\Rightarrow A_{\triangle} = \frac{l^2\sqrt{3}}{4} \Rightarrow \frac{4^2\sqrt{3}}{4} \Rightarrow \frac{16\sqrt{3}}{4} \Rightarrow \underline{\underline{4\sqrt{3} \text{ cm}^2}}$

(EQUILÁTERO)

c) O volume desse prisma.

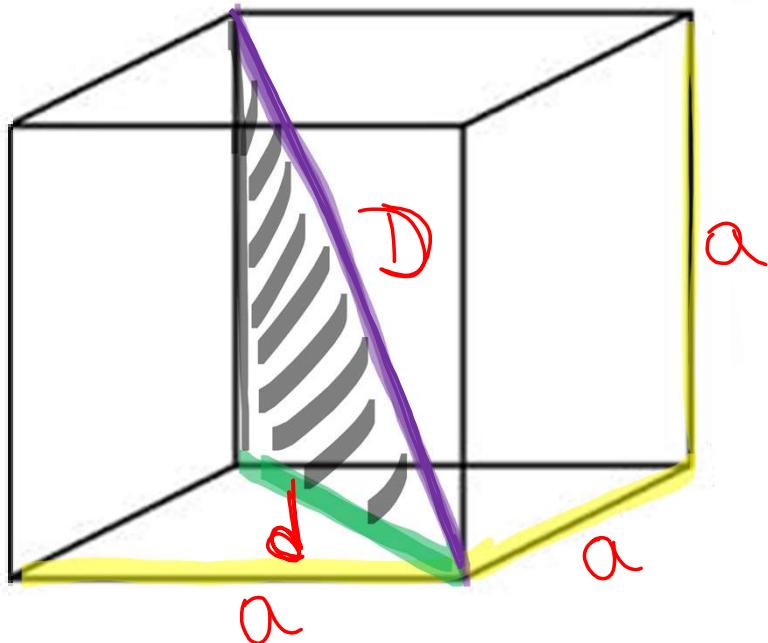


Prisma =  $A_{\text{base}}$  Triângulo  
Equilátero

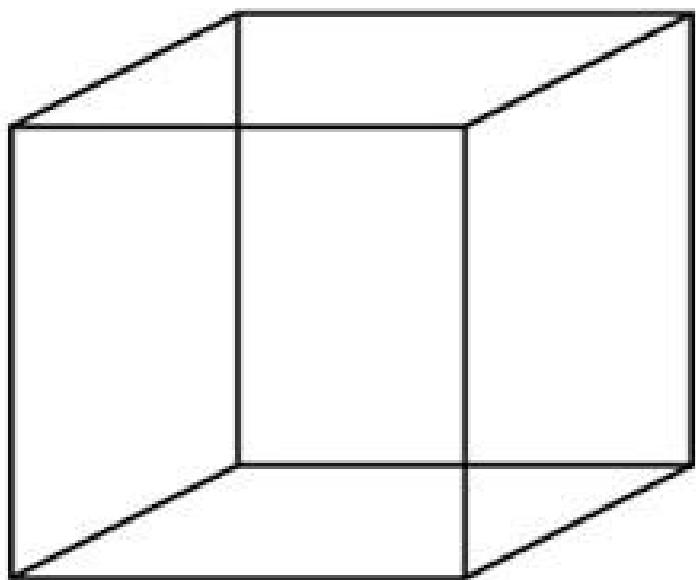
$$V_{\text{Prisma}} = \underbrace{4\sqrt{3}}_{\text{Cm}^2} \cdot \underbrace{8}_{\text{Cm}} = 32\sqrt{3} \text{ cm}^3$$

## Exercício proposto

A diagonal de um cubo mede 3 cm. Calcule o volume desse cubo.



$$\text{d} = 3 \text{ cm} \quad \sqrt{a^3}$$
$$a\sqrt{3} = 3 \quad V = a \cdot a \cdot a$$
$$a = \frac{3 \cdot \sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} \quad V = \underbrace{\sqrt{3} \cdot \sqrt{3} \cdot \sqrt{3}}$$
$$a = \frac{3\sqrt{3}}{3} = \sqrt{3} \text{ cm} \quad V = 3\sqrt{3} \text{ cm}^3$$



PROGRAMA DE MELHORIA TECNOLÓGICA

P/ CASA!

## Exercício proposto

Em um **prisma hexagonal regular**, cada aresta da base mede 6 cm e cada aresta lateral mede 10 cm. Calcule a área total desse prisma.

