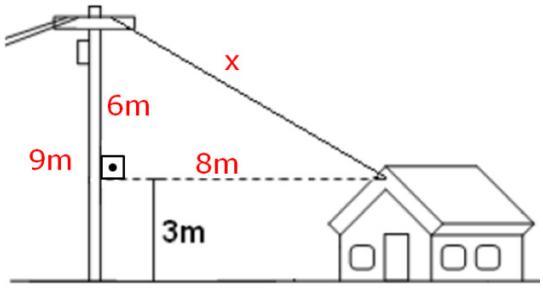
FAETEC
FUNDAÇÃO DE APOIO À ESCOLA TÉCNICA DO ESTADO DO RIO DE JANEIRO

Escola Técnica Estadual Visconde de Mauá

Gabarito da Lista 02

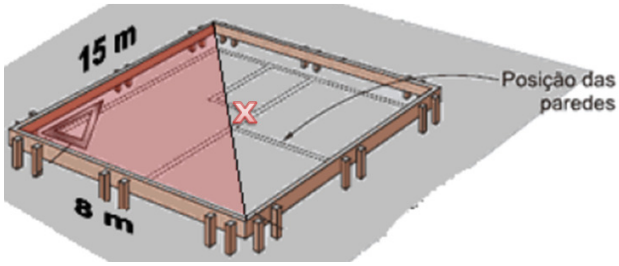
Triângulo Retângulo

01.



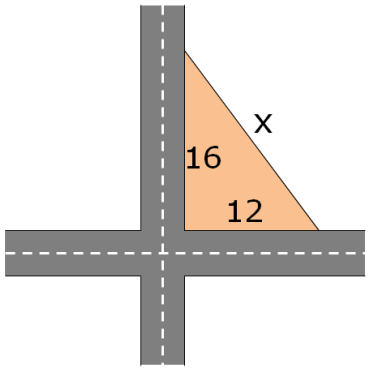
$x^2 = 6^2 + 8^2 \Rightarrow x^2 = 100 \Rightarrow x = \sqrt{100} \Rightarrow x = 10\text{m}$

02.



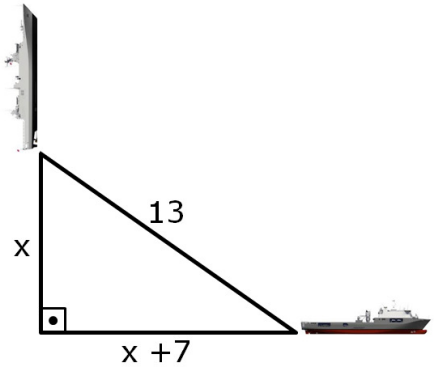
$x^2 = 15^2 + 8^2 \Rightarrow x^2 = 289 \Rightarrow x = \sqrt{289} \Rightarrow x = 17\,\text{m}$

03.



$x^2 = 16^2 + 12^2 \Rightarrow x^2 = 256 + 144 \Rightarrow x = \sqrt{400} \Rightarrow x = 20\,\text{m}$

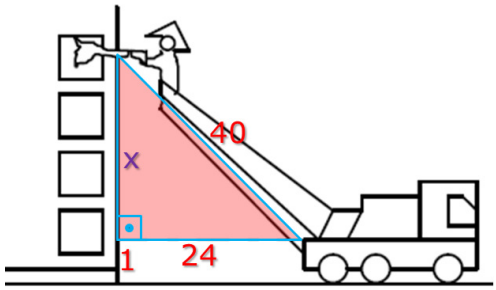
04.



$$x^2 + (x+7)^2 = 13^2 \Rightarrow x^2 + x^2 + 14x + 49 = 169 \Rightarrow 2x^2 + 14x - 120 = 0 \Rightarrow$$

$$x^2 + 7x - 60 = 0 \Rightarrow \begin{cases} x = -12 \\ \text{ou} \\ x = 5 \end{cases} \Rightarrow \text{Resp : } 5\,\text{milhas / h} \quad \text{e} \quad 12\,\text{milhas / h}$$

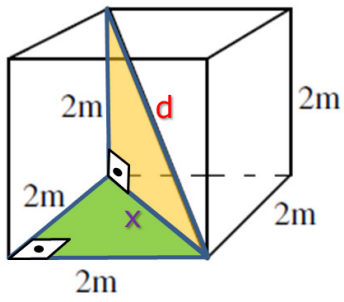
05.



$$x^2 + 24^2 = 40^2 \Rightarrow x^2 + 576 = 1600 \Rightarrow x^2 = 1024 \Rightarrow x = 32$$

Resp: Como a escada está a 1m do chão, a altura do apartamento é de 33m.

06.

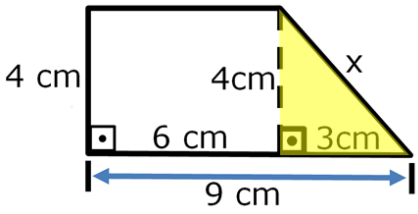


$$2^2 + 2^2 = x^2 \Rightarrow 8 = x^2$$

$$x^2 + 2^2 = d^2 \Rightarrow 8 + 4 = d^2 \Rightarrow 12 = d^2 \Rightarrow d = \sqrt{12} = 2\sqrt{3}\ \text{m}$$

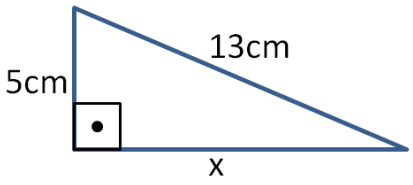
07.

a)



$4^2 + 3^2 = x^2 \Rightarrow 25 = x^2 \Rightarrow x = 5$

b)



$5^2 + x^2 = 13^2 \Rightarrow 25 + x^2 = 169 \Rightarrow x^2 = 144 \Rightarrow x = 12$

08.

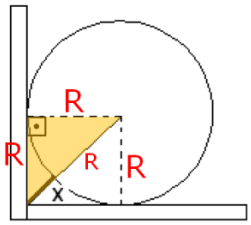
a) $\begin{cases} 6 = 2 \times 3 \\ 8 = 2 \times 4 \Rightarrow x = 10 \\ x = 2 \times 5 \end{cases}$

b) $\begin{cases} 12 = 4 \times 3 \\ 16 = 4 \times 4 \Rightarrow x = 20 \\ x = 4 \times 5 \end{cases}$

c) $\begin{cases} x = 5 \times 3 \\ 20 = 5 \times 4 \Rightarrow x = 15 \\ 25 = 5 \times 5 \end{cases}$

d) $15^2 + x^2 = 17^2 \Rightarrow 225 + x^2 = 289 \Rightarrow x^2 = 64 \Rightarrow x = 8$

09.



$(x + R)^2 = R^2 + R^2 \Rightarrow (x + R)^2 = 2R^2 \Rightarrow x + R = R\sqrt{2} \Rightarrow x = R\sqrt{2} - R$

$x = R(\sqrt{2} - 1) \Rightarrow x = R \cdot (1,414 - 1) \Rightarrow x = 0,414 \cdot R$

$R = \frac{x}{0,414}$

Como o diâmetro do cano é igual ao dobro do raio do cano, temos:

2R = D => R = $\frac{D}{2}$

Substituindo R em R = $\frac{x}{0,414}$,

$\frac{D}{2} = \frac{x}{0,414}$ => $D = 2 \cdot \frac{x}{0,414}$ => $D = \frac{2}{0,414} \cdot x$ => D = 4,83 . x