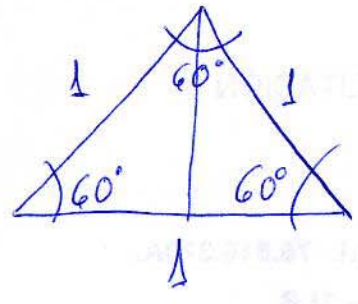
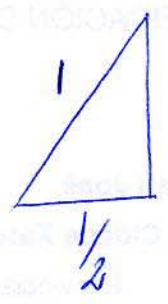


①



Triângulo equilátero



$$h^2 = c^2 + c^2$$

$$c = \sqrt{h^2 - c^2}$$

$$c = \sqrt{1^2 - \left(\frac{1}{2}\right)^2}$$

$$c = \sqrt{1 - \frac{1}{4}} = \sqrt{\frac{4}{4} - \frac{1}{4}} = \sqrt{\frac{3}{4}} = \frac{\sqrt{3}}{2}$$

$$\text{sen } 60^\circ = \frac{\frac{\sqrt{3}}{2}}{1} = \frac{\sqrt{3}}{2}$$

$$\text{tag } 60^\circ = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$$

$$\text{cos } 60^\circ = \frac{\frac{1}{2}}{1} = \frac{1}{2}$$

②

$$\text{sen } \alpha = \frac{1}{2}$$

$$\text{cosec } \alpha = 2$$

$$\text{cos } \alpha = \frac{-\sqrt{3}}{2}$$

$$\text{sec } \alpha = \frac{-2\sqrt{3}}{3}$$

$$\text{tag } \alpha = \frac{-\sqrt{3}}{3}$$

$$\text{cotag } \alpha = -\sqrt{3}$$

2º Quadrante

$$\text{sen}^2 \alpha + \text{cos}^2 \alpha = 1$$

$$\text{cos}^2 \alpha = 1 - \text{sen}^2 \alpha \Rightarrow \text{cos } \alpha = \sqrt{1 - \text{sen}^2 \alpha}$$

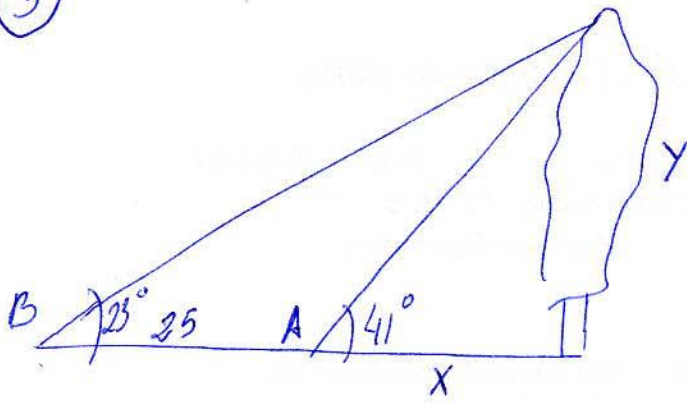
$$\text{cos } \alpha = \sqrt{1 - \left(\frac{1}{2}\right)^2} = \sqrt{1 - \frac{1}{4}} = \sqrt{\frac{4-1}{4}}$$

$$\text{cos } \alpha = \frac{\sqrt{3}}{2}$$

$$\text{sec } \alpha = \frac{2}{\sqrt{3}} \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

$$\text{tag } \alpha = \frac{\text{sen } \alpha}{\text{cos } \alpha} = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}} \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

3



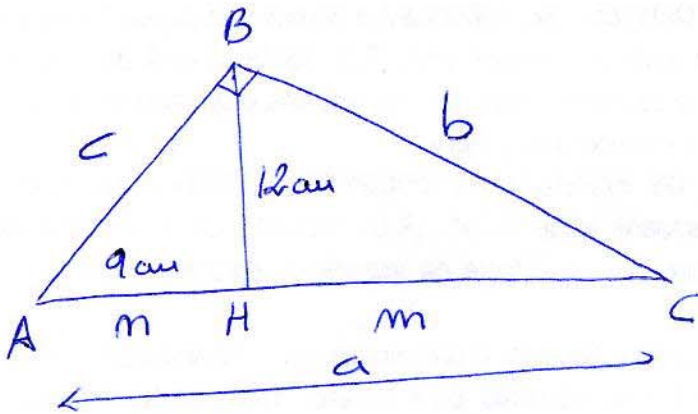
$$\left. \begin{aligned} \operatorname{tag} 23^\circ &= \frac{Y}{25+X} \\ \operatorname{tag} 41^\circ &= \frac{Y}{X} \end{aligned} \right\}$$

$$\left. \begin{aligned} Y &= \operatorname{tag} 23^\circ (25+X) \\ Y &= \operatorname{tag} 41^\circ \cdot X \end{aligned} \right\} \rightarrow \begin{aligned} Y &= 0'42 (25+X) = 10'5 + 0'42X \\ Y &= 0'87 \cdot X \end{aligned}$$

$$\left. \begin{aligned} Y &= 10'5 + 0'42X \\ Y &= 0'87X \end{aligned} \right\} \begin{aligned} 10'5 + 0'42X &= 0'87X \\ 10'5 &= 0'87X - 0'42X \\ 10'5 &= 0'45X \end{aligned} \quad X = \frac{10'5}{0'45} = 23'3 \text{ m}$$

$$Y = 0'87X = 0'87 \cdot 23'3 = \underline{\underline{20'3 \text{ m}}}$$

4



T^a catetas
 $b^2 = a \cdot m$
 $c^2 = a \cdot m$
 T^e altura
 $h^2 = m \cdot m$

$$h^2 = m \cdot m \rightarrow 12^2 = 9 \cdot m \rightarrow m = \frac{12^2}{9} = 16 \quad \underline{\underline{m = 16 \text{ cm}}}$$

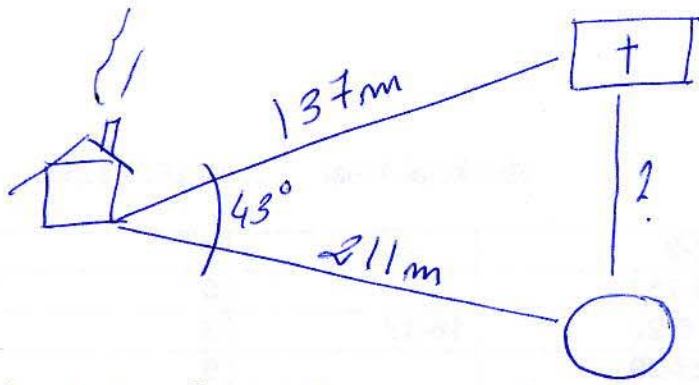
$$a = m + m = 9 + 16 = 25$$

$$b^2 = a \cdot m \rightarrow b = \sqrt{a \cdot m} = \sqrt{25 \cdot 16} = 20 \quad \underline{\underline{b = 20 \text{ cm}}}$$

$$c^2 = a \cdot m \rightarrow c = \sqrt{a \cdot m} = \sqrt{25 \cdot 9} = 15 \quad \underline{\underline{c = 15 \text{ cm}}}$$

$$\text{perímetro} = a + b + c = 25 + 20 + 15 = 60 \text{ cm}$$

5

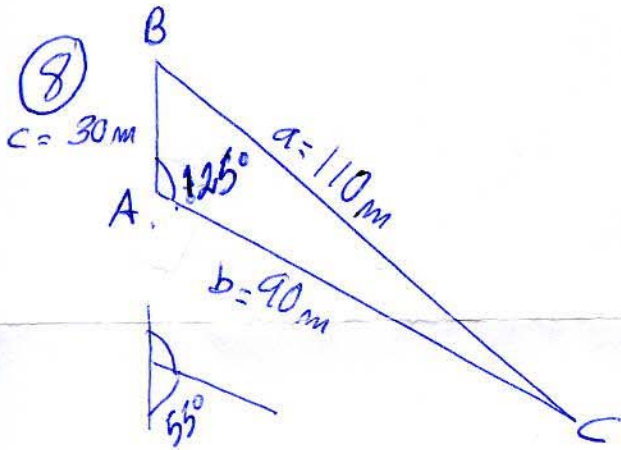


$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$a^2 = 137^2 + 211^2 - 2 \cdot 137 \cdot 211 \cdot \cos 43^\circ = 21007.5$$

$$a = \sqrt{21007.5} = \underline{145 \text{ m}}$$

8



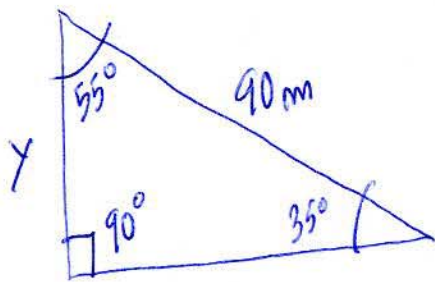
Quiero conocer A

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$

$$110^2 = 90^2 + 30^2 - 2 \cdot 90 \cdot 30 \cos A$$

$$\cos A = \frac{110^2 - 90^2 - 30^2}{-2 \cdot 90 \cdot 30} = -0.57$$

$$A = \arccos(-0.57) = 125^\circ$$



$$\text{sen } 35^\circ = \frac{Y}{90}$$

$$Y = 90 \cdot \text{sen } 35^\circ = \underline{52 \text{ m}}$$