Solucionario 8º ESO – 23/03/2020

39

Aplicando o Teorema de Pitágoras:

$$12^2 = 6^2 + c^2 \Leftrightarrow \boxed{c = \sqrt{12^2 - 6^2} = \sqrt{108} = 10'39 \text{ cm}}$$

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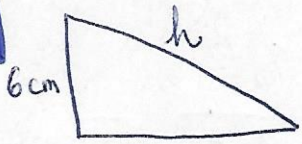

$$\left.\begin{array}{l} c_1 = 6 \text{ cm} \\ c_2 - c_1 = 2 \text{ cm} \end{array}\right\} \Leftrightarrow c_2 = 8 \text{ cm}$$

Por Pitágoras: $h^2 = 6^2 + 8^2 \Leftrightarrow h^2 = 100 \Leftrightarrow$

$$\boxed{h = 10 \text{ cm}}$$

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Se cumplen o Teorema de Pitágoras son triángulos rectángulos:

a) 5 cm, 12 cm, 13 cm

* Sempre o lado de maior lonxitude será (se é un triángulo rectángulo) a hipotenusa.

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

Como cumple o Teorema de Pitágoras é rectángulo

b) 6 cm, 8 cm e 12 cm

$$12^2 = 6^2 + 8^2 \Leftrightarrow 144 = 36 + 64 \Leftrightarrow 144 = 100$$

Non cumple, non é triángulo rectángulo.

c) 5cm, 6cm e $\sqrt{61}$ cm

$$(\sqrt{61})^2 = 6^2 + 5^2 \Leftrightarrow 61 = 36 + 25 \Leftrightarrow 61 = 61$$

Como cumple o Teorema de Pitágoras é rectángulo.

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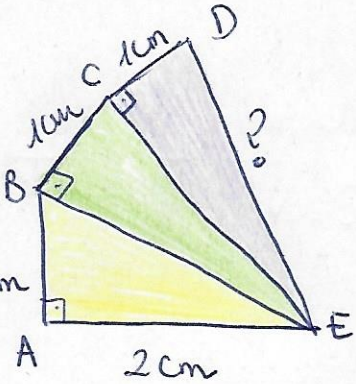
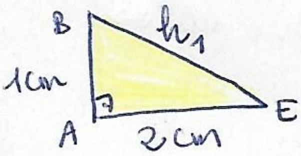
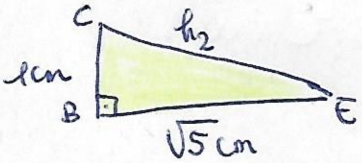
a)

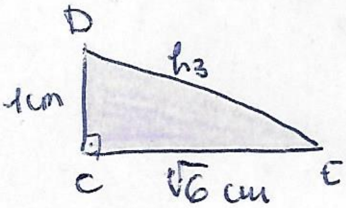




$h_1 = \sqrt{1^2+2^2} = \sqrt{5}$ cm



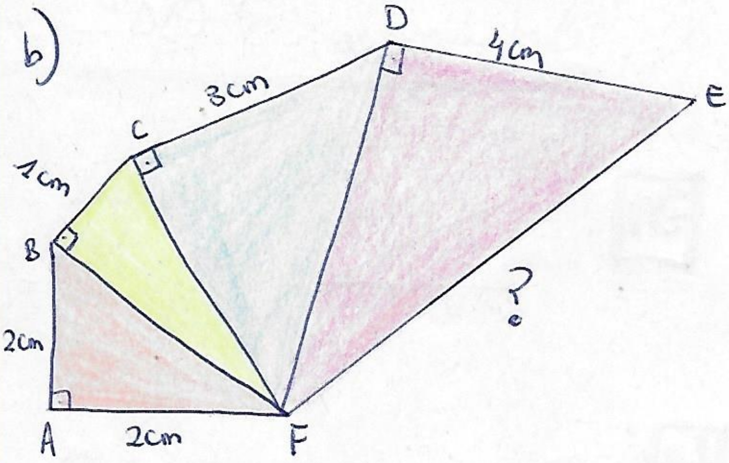
$h_2 = \sqrt{(\sqrt{5})^2+1^2} = \sqrt{6}$ cm

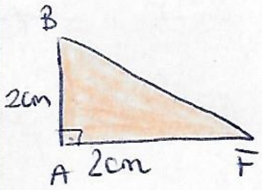


$h_3 = \sqrt{(\sqrt{6})^2+1^2} = \boxed{\sqrt{7} \text{ cm}}$

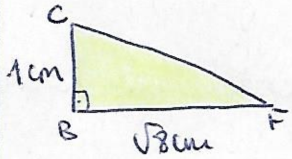
$\boxed{\text{Sol: } \sqrt{7} \text{ cm.}}$

b)

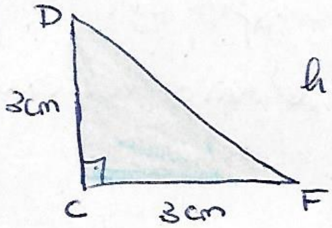




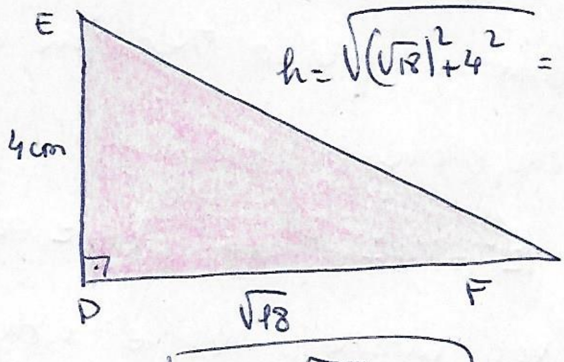
$h = \sqrt{2^2+2^2} = \sqrt{8}$ cm



$h = \sqrt{(\sqrt{8})^2+1^2} = 3$ cm



$h = \sqrt{3^2+3^2} = \sqrt{18}$ cm

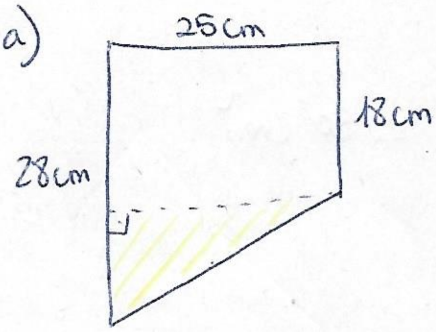


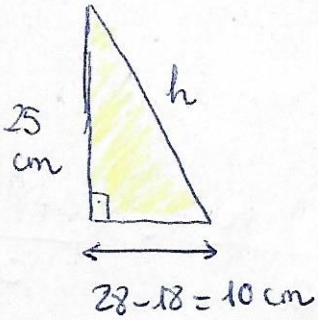
$h = \sqrt{(\sqrt{18})^2+4^2} = \sqrt{34}$ cm

$\boxed{\text{Sol: } \sqrt{34} \text{ cm}}$

54

a)

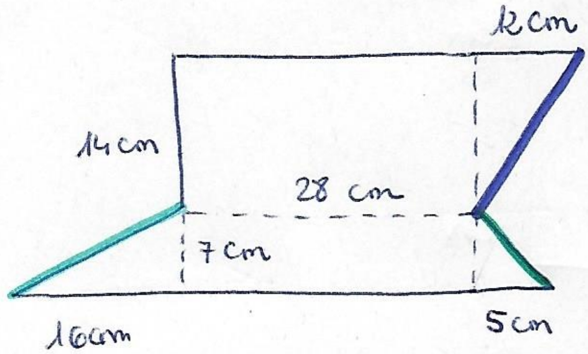


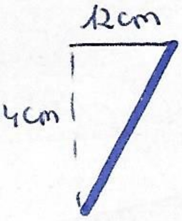


$h = \sqrt{25^2 + 10^2} = \sqrt{725} \simeq 26'93$ cm

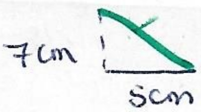
Perímetro = $25 + 18 + 26'93 + 28 = 97'93$ cm.

b)

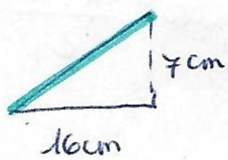




$h = \sqrt{12^2 + 14^2} = \sqrt{340}$ cm $=$
$= 18'44$ cm



$h = \sqrt{7^2 + 5^2} = \sqrt{74}$ cm $=$
$= 8'60$ cm



$h = \sqrt{16^2 + 7^2} = \sqrt{305}$ cm $\simeq 17'46$ cm

Perímetro: $\sqrt{305} + 14 + 28 + 12 + \sqrt{340} + \sqrt{74} + 5 + 28 + 16 = 147'51$ cm

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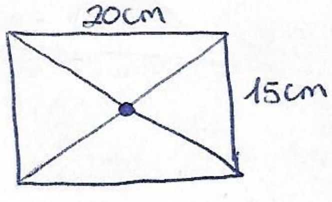
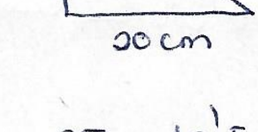


O rectángulo está inscrito na circunferencia.
As diagonais do rectángulo córtanse no punto medio que coincide co centro da circunferencia.

Calculamos a diagonal do rectángulo:



$d = \sqrt{15^2 + 20^2} = 25$ cm

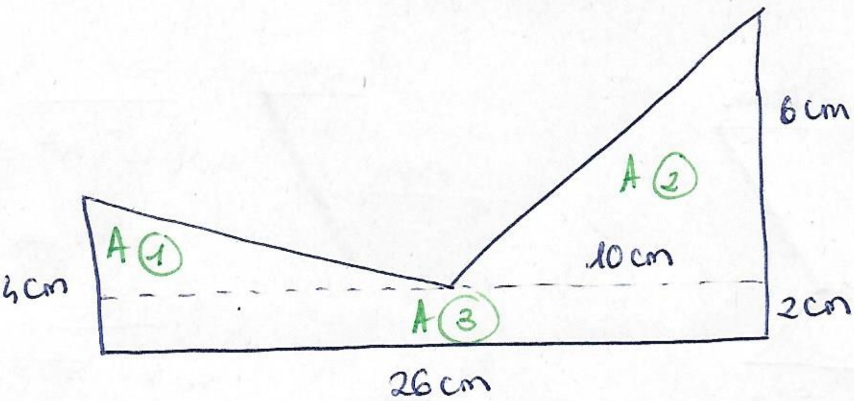
Por tanto o radio mide: $r = \frac{d}{2} = \frac{25}{2} = 12'5$ cm.

$\boxed{17}$

a) $A_{trapecio} = \frac{(B+b)\cdot h}{2} = \frac{(12+8)\cdot 5}{2} = 50\ cm^2$

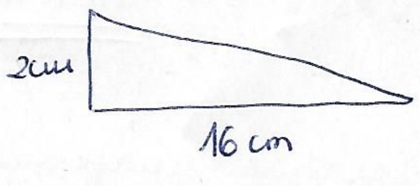
b) $A_{rombo} = \frac{D\cdot d}{2} = \frac{12\cdot 9}{2} = 54\ cm^2$

$\boxed{18}$

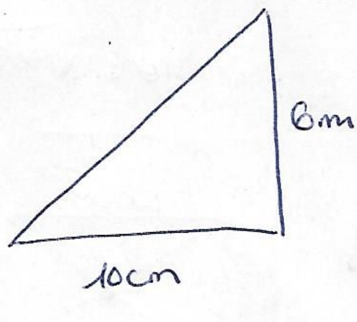


$\text{Área figura} = A_1 + A_2 + A_3$

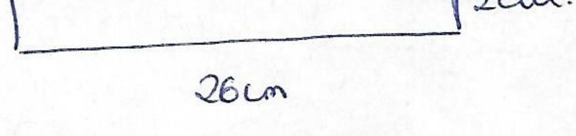
$\boxed{A_1}$ $A_{triángulo} = \frac{16\cdot 2}{2} = 16\ cm^2$



$\boxed{A_2}$ $A_{triángulo} = \frac{10\cdot 6}{2} = 30\ cm^2$



$\boxed{A_3}$



$A_{rectángulo} = 26\cdot 2 = 52\ cm^2$

$\text{Área figura} = 16+30+52 = \underline{\underline{98\ cm^2}}$