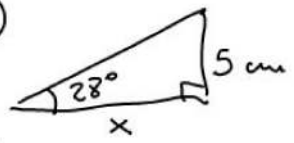
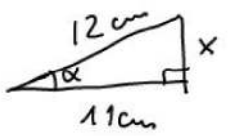
01/04/14 - 4eso B

① a)



$\tan 28° = \frac{5}{x} \Rightarrow x = \frac{5}{\tan 28°} \simeq 9.405 \text{ cm}$

b)



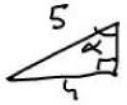
$12^2 = x^2 + 11^2 \Rightarrow x^2 = 144 - 121 = 23$

$x = \sqrt{23} = 4.796 \text{ cm}$

$\cos\alpha = \frac{11}{12} \Rightarrow \alpha = \cos^{-1}\left(\frac{11}{12}\right) \simeq 23°33'23.27''$

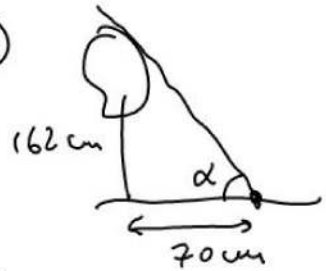
$90° - \alpha = 66°26'36.73''$

c) $\text{tg}\,\alpha = \frac{4}{5} \Rightarrow \cos\alpha = \frac{\sqrt{5^2-4^2}}{5} = \frac{3}{5}$

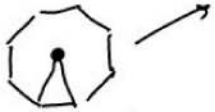


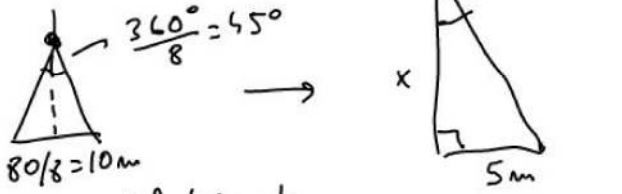
② $\tan\alpha = \frac{162}{70} \Rightarrow \alpha = \tan^{-1}\left(\frac{162}{70}\right)$

$\Rightarrow \alpha = 66°37'51.19''$



③





x = apotema = altura del triangle

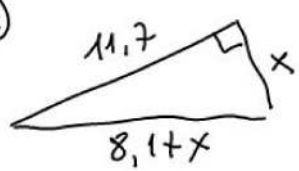
$\tan 22°30' = \frac{5}{x} \Rightarrow x = \frac{5}{\tan 22°30'} = 12,071 \text{ m}$

Àrea: $8 \cdot \frac{10 \cdot x}{2} = 40x = 40 \cdot \frac{5}{\tan 22°30'} = \frac{200}{\tan 22°30'} = 482,84 \text{ m}^2$

Nombre de cadres: $\frac{482,84}{3} = 160,94$

160 cadres

④



$11,7^2 + x^2 = (8,1+x)^2$

$136.89 + x^2 = 65.61 + 16.2x + x^2$

$136.89 - 65.61 = 16,2x$

$\frac{71,28}{16,2} = x \longrightarrow \boxed{x = 4.4 \text{ m}}$

⑤ a) $3x^2 - 19x - 14 = 0$

$x = \frac{19 \pm \sqrt{361+168}}{6} = \frac{19 \pm \sqrt{529}}{6} = \frac{19 \pm 23}{6} = \begin{cases} 7 \\ -\frac{4}{6} = -\frac{2}{3} \end{cases}$

b) $E_1: 4x - 3y = 4$

$E_2: 4x - 4y = 5$

$E_1 - E_2: \; y = -1 \longrightarrow x = \frac{4+3y}{4} = \frac{4-3}{4} = \frac{1}{4}$

$x = 1/4$, $y = -1$

c) $(x+1)^2 - 1 = x(x-1) + 1$

$x^2 + 2x + 1 - 1 = x^2 - x + 1$

$\Longleftrightarrow 3x = 1 \Longleftrightarrow x = \frac{1}{3}$

$2x = -x + 1$