

GEOMETRÍA EN EL PLANO

1. a) $K = \frac{30}{12} = 2'5$

b) $K = \frac{30}{12} = \frac{10}{x} \Rightarrow x = \frac{12 \cdot 10}{30} = 4$

Side 4 cm

2. a) Al multiplicar sus dimensiones por 0'2 la figura obtenida será más pequeña

b) $K_1 = \frac{36}{12} = 3$

$$K_2 = \frac{30}{10} = 3$$

$$K_3 = \frac{18}{6} = 3$$

$K_1 = K_2 = K_3 = 3 \Rightarrow$ Si son 2 triángulos semejantes

3. P_1 : perímetro pequeño

P_2 : perímetro mayor

$$\Rightarrow P_2 = K \cdot P_1$$

$$\Rightarrow P_2 = 2'5 \cdot 9 = 22'5 \text{ cm}$$

$$K = \frac{4}{1'6} = 2'5$$

$$P_1 = 1'8 + 3'6 + 2 + 1'6 = 9 \text{ cm}$$

4. a) A_2 : área grande: 63 cm^2

A_1 : área pequeña: 7 cm^2

$$K^2 = \frac{A_2}{A_1} \Rightarrow K^2 = \frac{63}{7} \Rightarrow K^2 = 9 \Rightarrow K = 3$$

b) P_2 : perímetro grande: 12 cm

P_1 : perímetro pequeño

$$K = \frac{P_2}{P_1} \Rightarrow 3 = \frac{12}{P_1} \Rightarrow 3 \cdot P_1 = 12 \Rightarrow P_1 = \frac{12}{3} = 4 \text{ cm}$$

5. $\hat{C} = \hat{C}' = 51^\circ$

$$33 + 51 + \hat{B} = 180 \Rightarrow \hat{B} = 96^\circ$$

$$\hat{B}' = \hat{B} = 96^\circ$$

$$k = \frac{40}{20} = 2$$

$$\begin{cases} 2 = \frac{51}{c'} \Rightarrow c' = \frac{51}{2} = 25.5 \text{ cm} \\ 2 = \frac{73}{b'} \Rightarrow b' = \frac{73}{2} = 36.5 \text{ cm} \end{cases}$$

6. a) $k_1 = \frac{13.5}{9} = 1.5$

$$k_2 = \frac{12}{8} = 1.5$$

$$70^\circ = 70^\circ$$

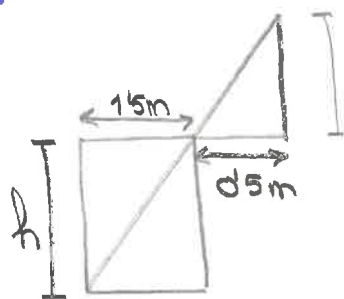
Son semejantes porque tienen 1 ángulo igual e los lados que los forman son proporcionales.

b) Son semejantes porque tienen los ángulos correspondientes iguales.

c) $k_1 = \frac{16.8}{12} = 1.4$; $k_2 = \frac{21}{15} = 1.4$; $k_3 = \frac{14}{10} = 1.4$

Son semejantes porque tienen los lados correspondientes iguales.

7.

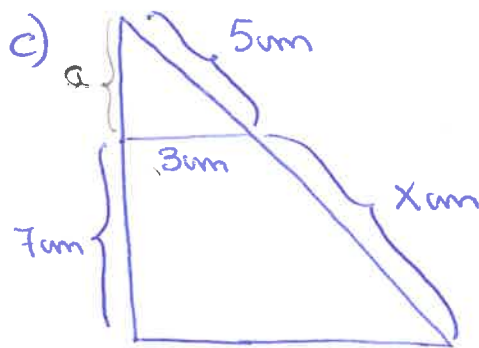


$$\frac{h}{1.7} = \frac{1.5}{0.5} \Rightarrow h = \frac{1.7 \cdot 1.5}{0.5} = 5.1 \text{ m}$$

El pozo tiene 5.1 m de profundidad

8. a) $\frac{6}{4} = \frac{x}{9} \Rightarrow x = \frac{9 \cdot 6}{4} = 13.5 \text{ cm}$

b) $\frac{10}{14} = \frac{2}{x} \Rightarrow x = \frac{14 \cdot 2}{10} = 2.8 \text{ cm}$



$$5^2 = 3^2 + a^2$$

$$25 = 9 + a^2$$

$$a^2 = 16 \Rightarrow a = 4$$

$$\frac{5+x}{7+4} = \frac{5}{4} \Rightarrow \frac{5+x}{11} = \frac{5}{4} \Rightarrow 5+x = \frac{11 \cdot 5}{4}$$

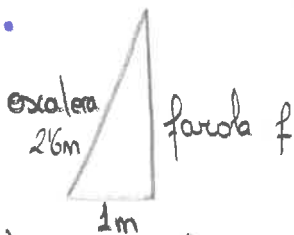
$$5+x = 13.75$$

$$x = 8.75 \text{ cm}$$

d)

$$\frac{9}{6} = \frac{15}{x} \Rightarrow x = \frac{15 \cdot 6}{9} \Rightarrow x = 10$$

90.



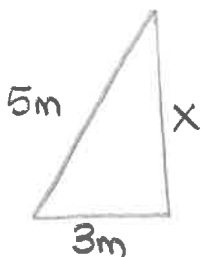
$$26^2 = 1^2 + f^2$$

$$676 = 1 + f^2$$

$$f^2 = 675 \Rightarrow f = \sqrt{675} = 2.4$$

La farola mide 2.4 m de altura

10.



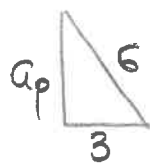
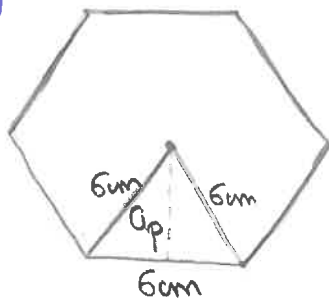
$$5^2 = 3^2 + x^2$$

$$25 = 9 + x^2$$

$$x^2 = 16 \Rightarrow x = \sqrt{16} = 4$$

Se encuentra a 4 m de altura

11. a)



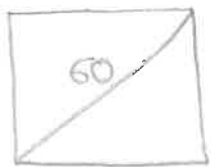
NOTA: En el hexágono regular: lado = radio

$$6^2 = 3^2 + A_p^2 \Rightarrow A_p = 5.2 \text{ cm}$$

$$\text{Area} = \frac{P \cdot A_p}{2} = \frac{6 \cdot 6 \cdot 5.2}{2} = 93.6 \text{ cm}^2$$

b) NO

12.



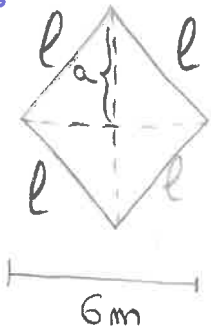
$$60^2 = l^2 + l^2$$

$$3600 = 2l^2 \Rightarrow l^2 = 1800 \Rightarrow l = \sqrt{1800} = 42'43 \text{ cm}$$

$$P = 4 \cdot l \Rightarrow P = 4 \cdot 42'43 = 169'72 \text{ cm}$$

$$A = l^2 \Rightarrow A = 42'43^2 = 1800'3 \text{ cm}^2$$

13.

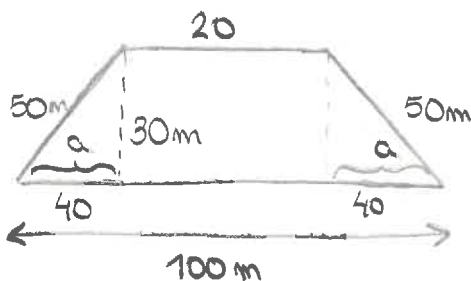


$$P = 20 \text{ m}; \quad 4 \cdot l = 20 \Rightarrow l = 5 \text{ m}$$

$$5^2 = 3^2 + a^2 \Rightarrow a = 4 \text{ m} \Rightarrow D = 2 \cdot a = 8 \text{ m}$$

$$A' = \frac{D \cdot d}{2} = \frac{8 \cdot 6}{2} = 24 \text{ m}^2$$

14.



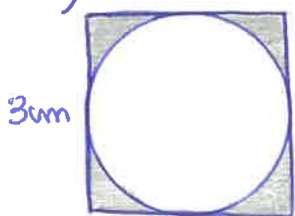
$$50^2 = 30^2 + a^2 \Rightarrow a = 40 \text{ m}$$

$$P = 100 + 50 + 20 + 50 = 220 \text{ m}$$

$$P_{\text{precio}} = 220 \cdot 20'5 = 4510 \text{ €}$$

15.

a)



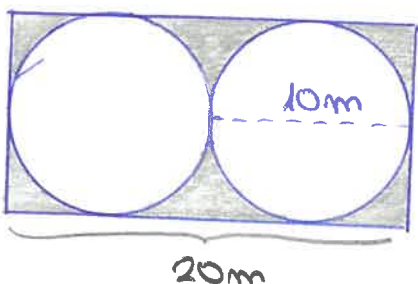
$$A_T = A_{\text{cuad}} - A_{\text{circ}}$$

$$A_{\text{cuad}} = l^2 = 3^2 = 9 \text{ cm}^2$$

$$A_{\text{circ}} = \pi \cdot r^2 = 3'14 \cdot 1'5^2 = 7'07 \text{ cm}^2$$

$$A_T = 9 - 7'07 = 1'93 \text{ cm}^2$$

b)



$$A_T = A_{\text{rectángulo}} - 2 \cdot A_{\text{círculo}}$$

$$A_{\text{rect}} = b \cdot a = 20 \cdot 10 = 200 \text{ m}^2$$

$$A_{\text{círculo}} = \pi \cdot r^2 = 3'14 \cdot 5^2 = 78'5 \text{ m}^2$$

$$A_T = 200 - 2 \cdot 78'5 \Rightarrow A_T = 43 \text{ m}^2$$