

	TETR.	CUBO	OCT.	DODEC.	ICOS.
CARAS	4	6	8	12	20
VÉRTICES	4	8	6	20	12
ARISTAS	6	12	12	30	30

a) Tetraedro $\rightarrow 4 + 4 - 6 = 2$

Cubo $\rightarrow 6 + 8 - 12 = 2$

Octaedro $\rightarrow 8 + 6 - 12 = 2$

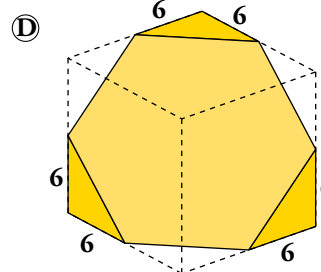
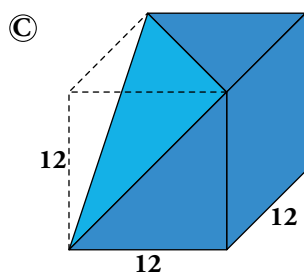
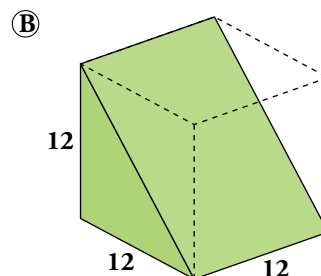
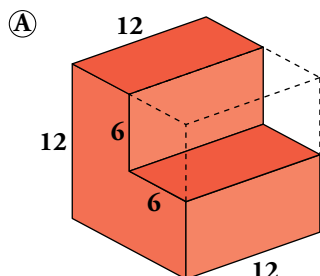
Dodecaedro $\rightarrow 12 + 20 - 30 = 2$

Icosaedro $\rightarrow 20 + 12 - 30 = 2$

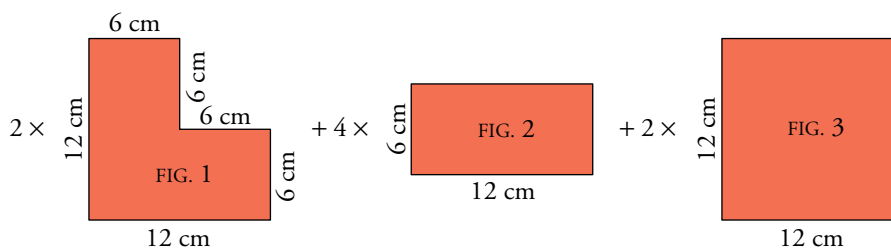
5 Superficie de los cuerpos geométricos

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1. Calcula el área de estos poliedros obtenidos a partir de un cubo de 12 cm de arista:



Ⓐ Si hacemos el desarrollo de la figura, queda:



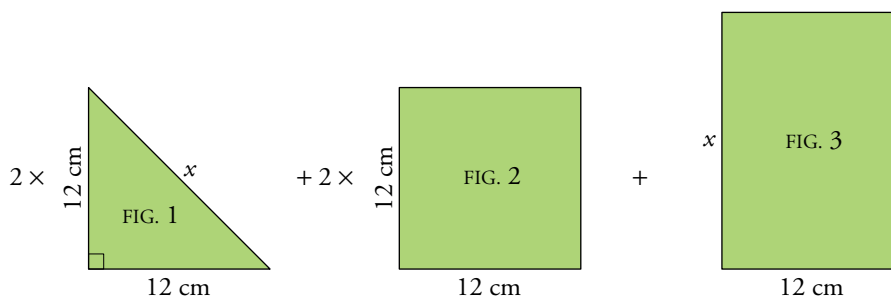
$$A_{\text{FIG. 1}} = 12 \cdot 6 + 6 \cdot 6 = 108 \text{ cm}^2$$

$$A_{\text{FIG. 3}} = 12^2 = 144 \text{ cm}^2$$

$$A_{\text{FIG. 2}} = 12 \cdot 6 = 72 \text{ cm}^2$$

$$A_{\text{TOTAL}} = 2 \cdot 108 + 4 \cdot 72 + 2 \cdot 144 = 792 \text{ cm}^2$$

Ⓑ Si hacemos el desarrollo de la figura, queda:



$$x = \sqrt{12^2 + 12^2} \approx 16,97 \text{ cm}$$

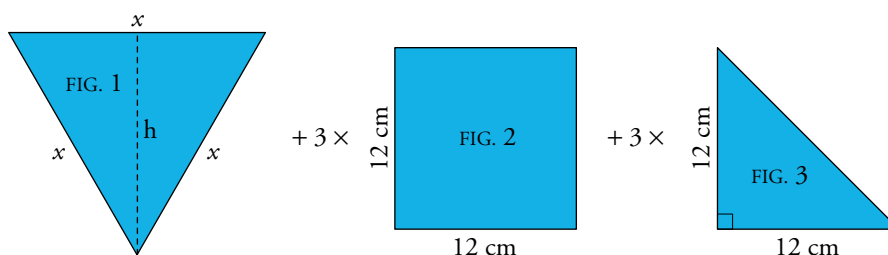
$$A_{\text{FIG. 2}} = 12^2 = 144 \text{ cm}^2$$

$$A_{\text{TOTAL}} = 2 \cdot 72 + 2 \cdot 144 + 203,64 = 635,64 \text{ cm}^2$$

$$A_{\text{FIG. 1}} = \frac{12^2}{2} = 72 \text{ cm}^2$$

$$A_{\text{FIG. 3}} = 12 \cdot 16,97 = 203,64 \text{ cm}^2$$

© Si hacemos el desarrollo de la figura, queda:



$$x \approx 16,97 \text{ cm (ver B)}; h = \sqrt{x^2 - \left(\frac{x}{2}\right)^2} = \frac{x\sqrt{3}}{2} \approx 14,70 \text{ cm}$$

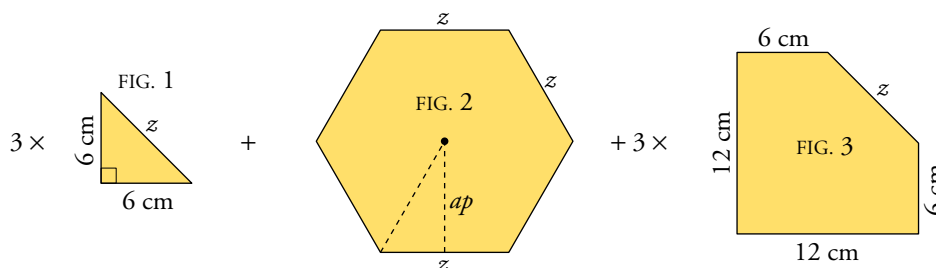
$$A_{\text{FIG. 1}} = \frac{16,97 \cdot 14,70}{2} \approx 124,73 \text{ cm}^2$$

$$A_{\text{FIG. 2}} = 12^2 = 144 \text{ cm}^2$$

$$A_{\text{FIG. 3}} = 72 \text{ cm}^2$$

$$A_{\text{TOTAL}} = 124,73 + 3 \cdot 144 + 3 \cdot 72 = 772,73 \text{ cm}^2$$

© Si hacemos el desarrollo de la figura, queda:



$$z = \sqrt{6^2 + 6^2} \approx 8,49 \text{ cm}$$

$$\text{Apotema del hexágono regular: } ap = \sqrt{z^2 - \left(\frac{z}{2}\right)^2} = \frac{z\sqrt{3}}{2} \approx 7,35 \text{ cm}$$

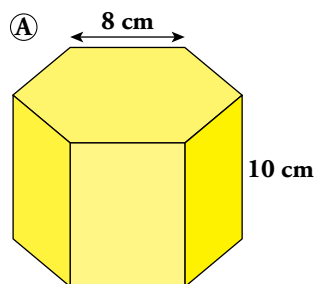
$$A_{\text{FIG. 1}} = 18 \text{ cm}^2$$

$$A_{\text{FIG. 2}} = \frac{6 \cdot 8,49 \cdot 7,35}{2} = 187,20 \text{ cm}^2$$

$$A_{\text{FIG. 3}} = 12 \cdot 12 - A_{\text{FIG. 1}} = 144 - 18 = 126 \text{ cm}^2$$

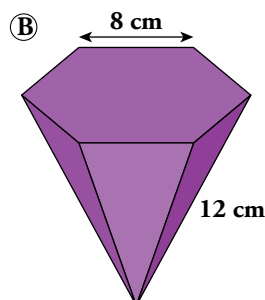
$$A_{\text{TOTAL}} = 3 \cdot 18 + 187,20 + 3 \cdot 126 = 619,2 \text{ cm}^2$$

2. Obtén la medida de la superficie del prisma y de la pirámide. La base de ambos es un hexágono regular.



ARISTA BASE → 8 cm

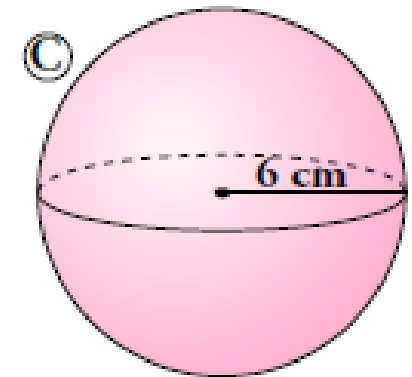
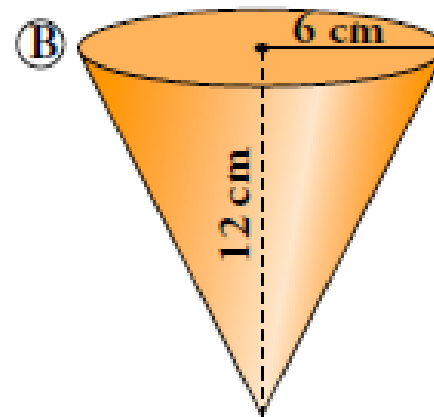
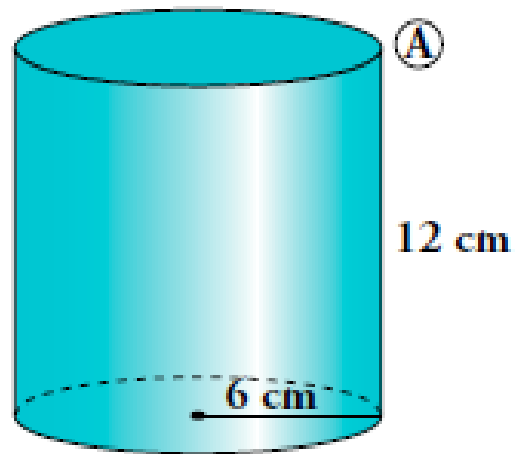
ALTURA PRISMA → 10 cm



ARISTA BASE → 8 cm

ARISTA LATERAL → 12 cm

3. Calcula el área de estos cuerpos:



$$\textcircled{A} A_{\text{TOTAL}} = 2\pi \cdot 6 \cdot 12 + 2\pi \cdot 6^2 \approx 678,58 \text{ cm}^2$$

$$\textcircled{B} g = \sqrt{12^2 + 6^2} \approx 13,42 \text{ cm}$$

$$A_{\text{TOTAL}} = \pi \cdot 6 \cdot 13,42 + \pi \cdot 6^2 \approx 366,06 \text{ cm}^2$$

$$\textcircled{C} A_{\text{TOTAL}} = 4\pi \cdot 6^2 \approx 452,39 \text{ cm}^2$$