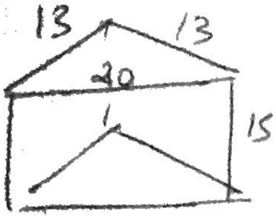
ÁREAS Y VOLÚMENES

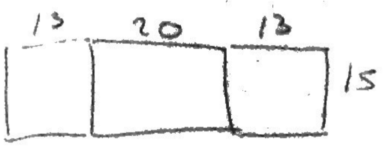
⑨

a)

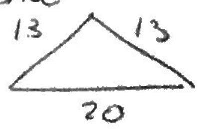


$$A = A_{LATERAL} + 2\,A_{BASE} = \boxed{690} + 2\cdot\boxed{83}$$

- $A_{LATERAL} = 13\cdot15 + 20\cdot15 + 13\cdot15 = \boxed{690}\ cm^2$



- A_{BASE}



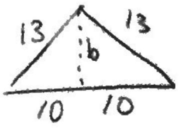
Dos opciones

a) Fórmula de Herón

$$s = \frac{13+20+13}{2} = \frac{46}{2} = 23$$

$$A_{Base} = \sqrt{23\cdot(23-13)\cdot(23-20)\cdot(23-13)} = 83$$

b) Calcular la altura por Pitágoras



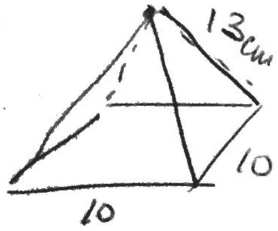
$$b = \sqrt{13^2-10^2} = \sqrt{69} = 8'3$$

$$A_{\substack{Base\\TRIÁNGULO}} = \frac{Base\cdot Altura}{2} = \frac{20\cdot 8'3}{2} = \boxed{83}\ cm^2$$

Volumen

$$V = A_{Base}\cdot Altura = A_{triángulo}\cdot Altura = 83\cdot15 = 1245\ cm^3$$

b)

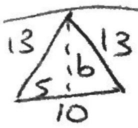


ÁREA

$$A = A_{LATERAL} + A_{BASE} = \boxed{240} + \boxed{100} = 340\ cm^2$$

$$A_{LATERAL} = 4\cdot \qquad = 4\cdot60 = \boxed{240\ cm^2}$$

$\uparrow$



$$b = \sqrt{13^2-5^2} = 12$$

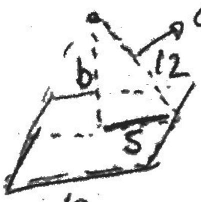
$$A_{TRIÁNGULO} = \frac{BASE\cdot ALTURA}{2} = \frac{10\cdot12}{2} = 60$$

$$A_{\substack{BASE\\CUADRADO}} = 10^2 = \boxed{100\ cm^2}$$

VOLUMEN

$$V = \frac{1}{3}\,\boxed{A_{BASE}}^{\,CUADRADO}\cdot Altura$$

Altura no nos la dan



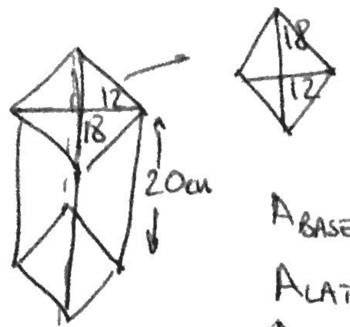
calculado antes $\sqrt{13^2-5^2} = 12$

$$b = \sqrt{12^2-5^2} = \sqrt{119} = 10'9$$

$$V = \frac{1}{3}\cdot10^2\cdot10'9 = 363'3\ cm^3$$

⑩

a)



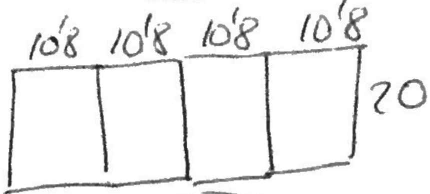
ÁREA

$A = 2 \cdot A_{BASE} + A_{LATERAL} = 2 \cdot \boxed{108} + \boxed{864} = 1080 \text{ cm}$

$A_{BASE} = A_{ROMBO} = \frac{D \cdot d}{2} = \frac{18 \cdot 12}{2} = \boxed{108 \text{ cm}^2}$

$A_{LATERAL}$

$a = \sqrt{9^2 + 6^2} = 10'8$



$A_{LTAERAL} = 4 \cdot \boxed{10'8 \cdot 20} = \boxed{864 \text{ cm}^2}$

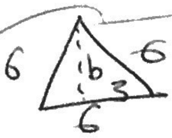
VOLUMEN

$V = A_{ROMBO} \cdot \text{Altura} = 108 \cdot 20 = 2160 \text{ cm}^3$

b)

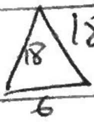
$A = A_{BASE} + A_{LATERAL}$

$A_{BASE} = A_{HEXÁGONO} = \frac{P \cdot \text{apotema}}{2} = \frac{\overset{\text{Perímetro}}{\boxed{6 \cdot 6}} \cdot \overset{\text{apotema}}{\boxed{5'2}}}{2} = \boxed{93 \text{ cm}^2}$

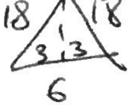


$b = \text{apotema} = \sqrt{6^2 - 3^2} = \sqrt{27} = 5'2$

$A_{LATERAL} = 6$



$= 6 \cdot \boxed{53'2} = \boxed{319'4 \text{ cm}^2}$



$\text{Altura} = \sqrt{18^2 - 3^2} = 17'74$

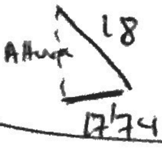
$\text{TRIÁNGULO} = \frac{6 \cdot 17'74}{2} = 53'2$

$A = 93 + 319'4 = 412'4 \text{ cm}^2$

VOLUMEN

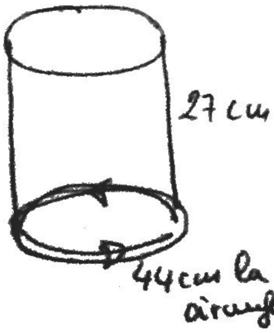
$V = \frac{1}{3} A_{BASE\ HEXÁGONO} \cdot \text{Altura} = \frac{1}{3} \cdot 93 \cdot 3'04 = \boxed{94'2 \text{ cm}^3}$

Altura no te la dan



$\text{Altura} = \sqrt{18^2 - 17'74^2} = 3'04$

d)



· Hallamos el radio

$2\pi R = 44 \rightarrow R = \frac{44}{2\pi} = \frac{44}{2 \cdot 3'14} = 7 \text{ cm}$

· $\text{ÁREA} = 2 \underset{\pi R^2}{◯} + \underset{2\pi R}{▭}\, 27 =$

$= 2\boxed{\pi \cdot 7^2} + \boxed{2\pi \cdot 7 \cdot 27} = 1494'6 \text{ cm}^2$

· VOLUMEN

$V = \frac{1}{3} A_{CÍRCULO} \cdot \text{ALTURA} = \frac{1}{3} \boxed{\pi \cdot 7^2} \cdot 27 =$

$= \frac{1}{3} \cdot 3'14 \cdot 49 \cdot 27 \text{ cm}^3$

e) CONO de radio 9 cm y generatriz 15

$$\text{Altura}_{\text{CONO}} = \sqrt{15^2-9^2}=12$$

$\text{Área} = A_{\text{CÍRCULO}} +$  $= \boxed{\pi\cdot 9^2} + \boxed{2\pi\cdot 9\cdot 15} =$

$2\pi Rg$

$$= 3'14\cdot 81 + 2\cdot 3'14\cdot 9\cdot 15 = \dots \text{cm}^2$$

$$\text{VOLUMEN} = \frac{1}{3}\, A_{\text{CÍRCULO}}\cdot \text{Altura} = \frac{1}{3}\,\pi\cdot 9^2\cdot 12 =$$

$$= \frac{1}{3}\cdot 3'14\cdot 81\cdot 12 = \dots \text{cm}^3$$