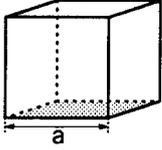
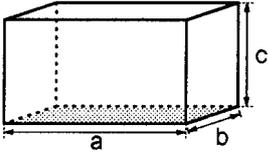
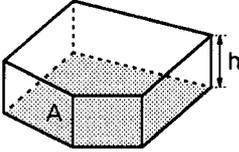
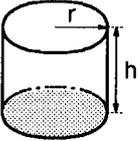
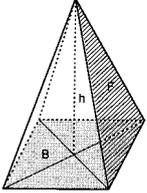
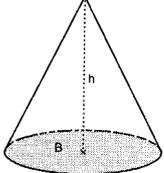
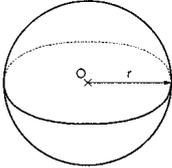


**SERIE 43 – Géométrie**

**Les volumes**

*calculatrice autorisée*

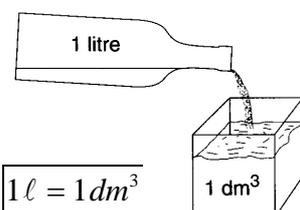
Corps :	Nom du corps :	VOLUME :
	Cube	$V = a^3$
	Parallélépipède rectangle	$V = a \cdot b \cdot c$
	Prisme droit	$V = A \cdot h$
	Cylindre	$V = S_O \cdot h = \pi \cdot r^2 \cdot h$
	Pyramide régulière	$V = \frac{S_B \cdot h}{3}$
	Cône droit	$V = \frac{S_B \cdot h}{3} = \frac{\pi \cdot r^2 \cdot h}{3}$
	Sphère	$V = \frac{4}{3} \cdot \pi \cdot r^3$

**Unités de volume :**

km <sup>3</sup>	hm <sup>3</sup>	dam <sup>3</sup>	m <sup>3</sup>	dm <sup>3</sup>	cm <sup>3</sup>	mm <sup>3</sup>
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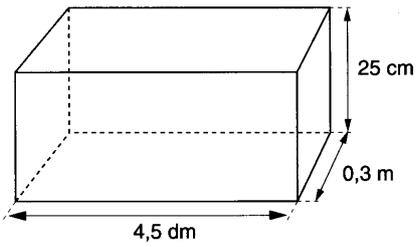
**Unités de capacité :**

	hl	dal	l	dl	cl	ml
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**Exercice 1 :**

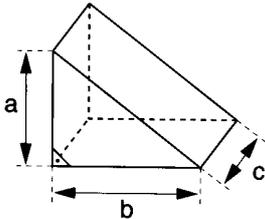
Calculer le volume de ce parallépipède rectangle en  $\text{cm}^3$



**Exercice 2 :**

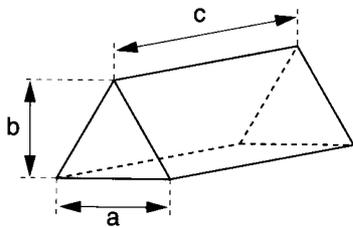
Calculer le volume chacun de ces prismes droits après en avoir colorié une base.

1)



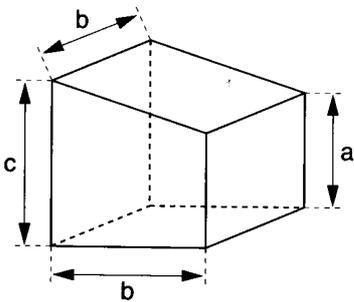
$a = 36 \text{ mm}$   
 $b = 58 \text{ mm}$   
 $c = 12 \text{ mm}$

2)



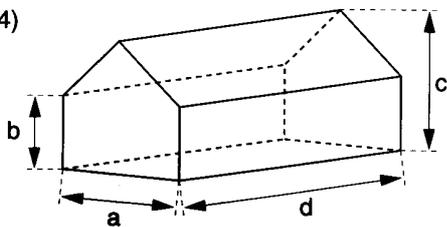
$a = 30 \text{ mm}$   
 $b = 18 \text{ mm}$   
 $c = 72 \text{ mm}$

3)



$a = 13 \text{ cm}$   
 $b = 12 \text{ cm}$   
 $c = 20 \text{ cm}$

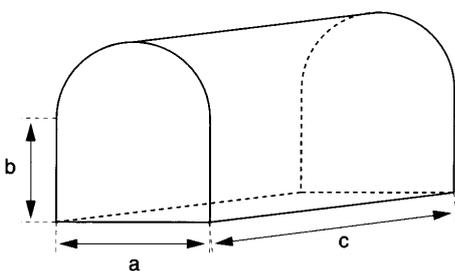
4)



$a = 3 \text{ dm}$   
 $b = 2 \text{ dm}$   
 $c = 5 \text{ dm}$   
 $d = 1 \text{ m}$

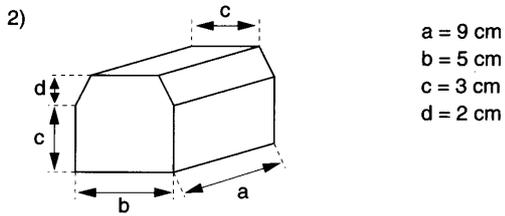
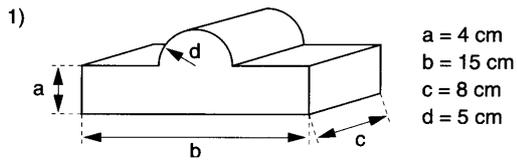
**Exercice 3 :**

Calculer le volume de ce tunnel.  $a = 4 \text{ m}$   $b = 5 \text{ m}$   $c = 12 \text{ km}$



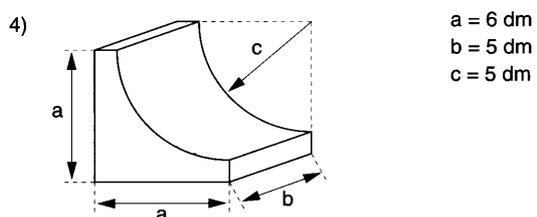
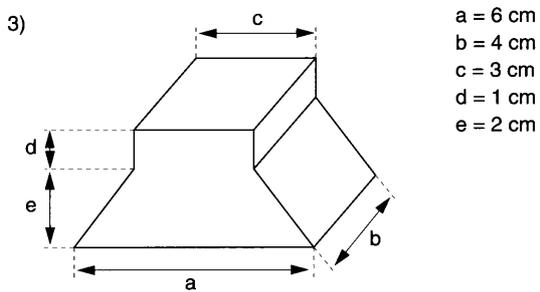
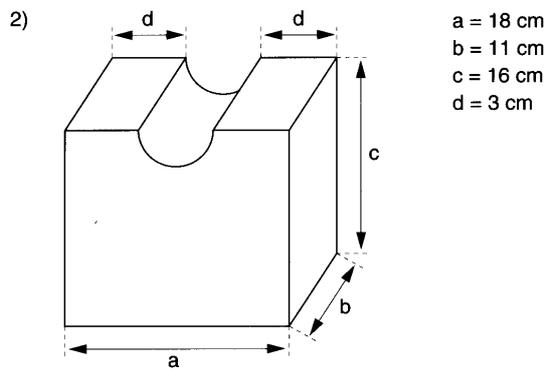
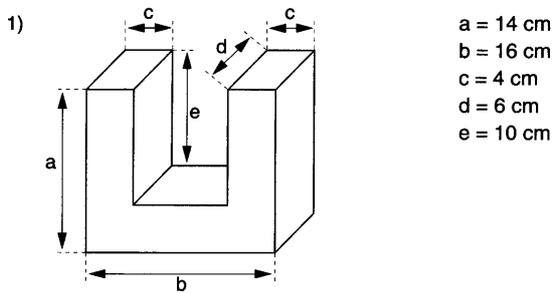
**Exercice 4 :**

Calculer le volume de ces corps.



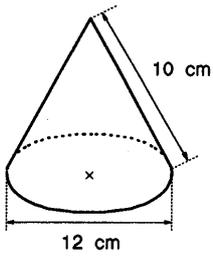
**Exercice 5 :**

Calculer le volume de ces corps.



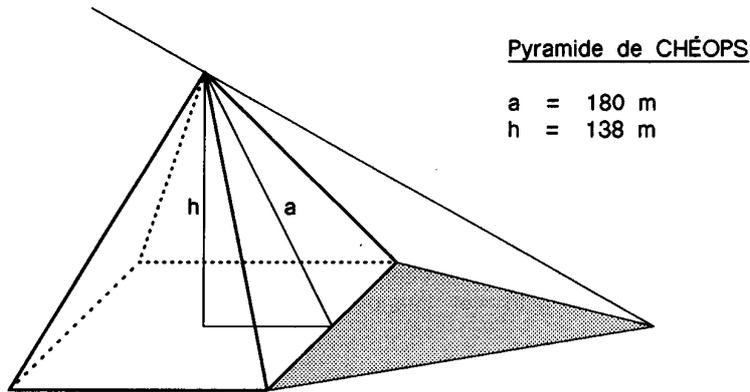
**Exercice 6 :**

Calculer le volume de ce cône.



**Exercice 7\* :**

Les pyramides d’Egypte sont des pyramides à base carrée.



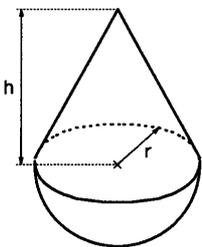
Sur cette figure, l’ombre de la pyramide a la même aire que chacune des faces latérales.

Calculer :

- a) l’aire de la base
- b) le volume
- c) l’aire de l’ombre
- d) la longueur des arêtes

**Exercice 8\* :**

Quelle hauteur faut-il donner au cône pour que son volume soit le même que celui de la demi-sphère, si  $r = 10 \text{ cm}$  ?



**Solutions :**

Ex 1 :

$$V = 33750 \text{ cm}^3$$

Ex 2 :

$$1) 12'528 \text{ mm}^3 ; 2) 19'440 \text{ mm}^3 ; 3) 2'376 \text{ cm}^3 ; 4) 105 \text{ dm}^3$$

Ex 3 :

$$315'360 \text{ m}^3$$

Ex 4 :

$$1) 794 \text{ cm}^3 ; 2) 207 \text{ cm}^3$$

Ex 5 :

$$1) 864 \text{ cm}^3 ; 2) 2'546,28 \text{ cm}^3 ; 3) 48 \text{ cm}^3 ; 4) 81,875 \text{ dm}^3$$

Ex 6 :

$$h = 8 \text{ cm} ; \text{ donc } : V = 301,44 \text{ cm}^3$$

Ex 7 :

$$a) \text{ Arrête } : 231,14 \text{ m} ; A_{\text{base}} = 53'425,70 \text{ m}^2$$

$$b) V = 2'457'582,18 \text{ m}^3$$

$$c) 20'736 \text{ m}^2$$

$$d) \text{ Base } : 231,14 \text{ m} ; \text{ Latérale } : 254,23 \text{ m}$$

Ex 8 :

$$20 \text{ cm}$$