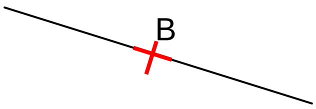
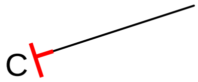
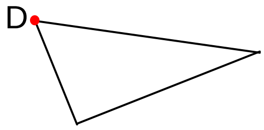
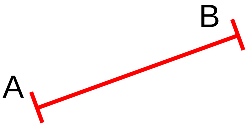
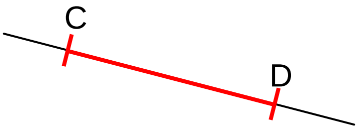
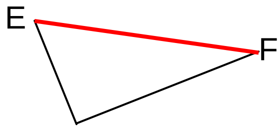
Les objets géométriques

<u>Les points :</u>

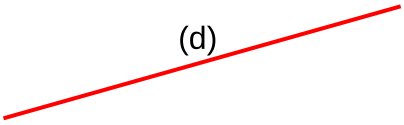
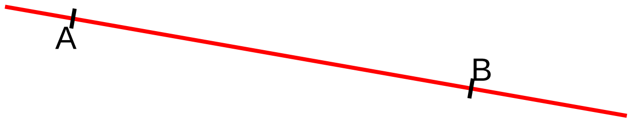
A	B	C	D
			

<u>Les segments :</u> [...]

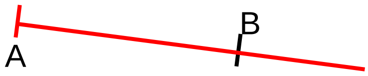
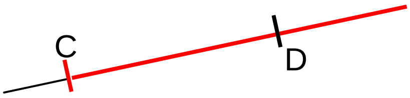
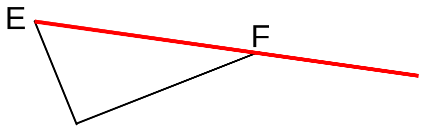
[AB]	[CD]	[EF]
		

Mesure d'un segment : AB = 10 cm

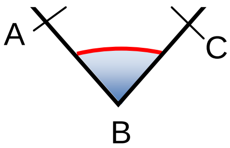
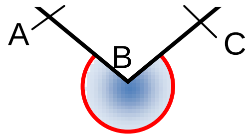
<u>Les droites :</u> (...)

(d)	(AB)
	

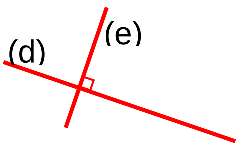
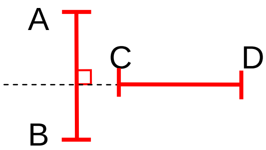
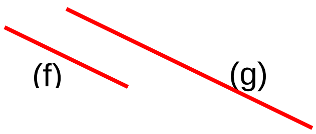
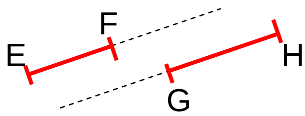
<u>Les demi-droites :</u> [...)

[AB)	[CD)	[EF)
		

<u>Les angles :</u> $\widehat{......}$ $\overset{\smile}{......}$

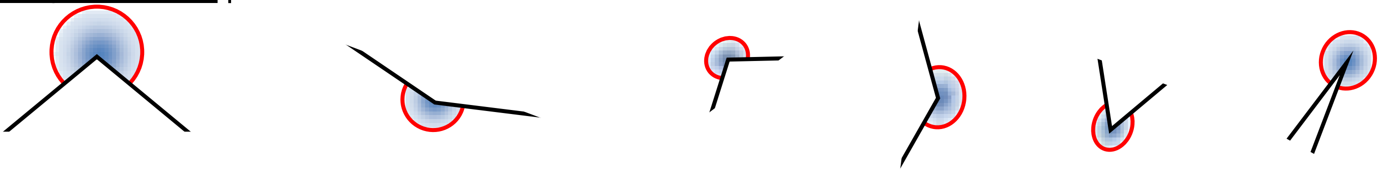
Angle saillant $\widehat{ABC}$	Angle rentrant $\overset{\smile}{ABC}$
	

<u>Perpendiculaires :</u> $\perp$ <u>Parallèles :</u> / /

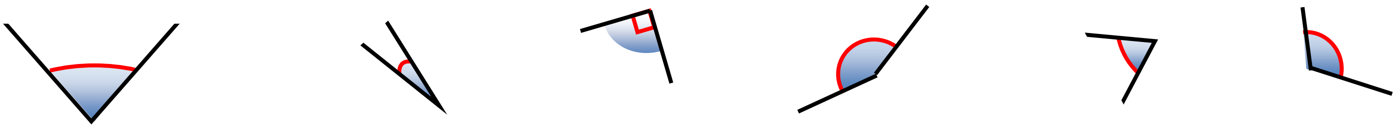
(d) $\perp$ (e)	[AB] $\perp$ [CD]	(f) / / (g)	[EF] / / [GH]
			

Les angles

L'angle **rentrant** pointe vers l'intérieur :



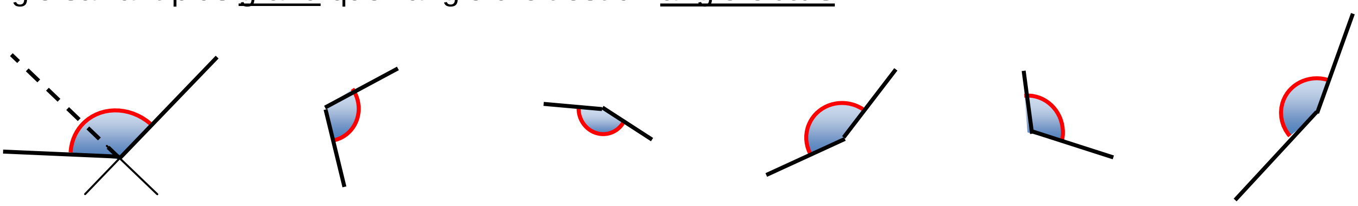
L'angle **saillant** pointe vers l'extérieur:



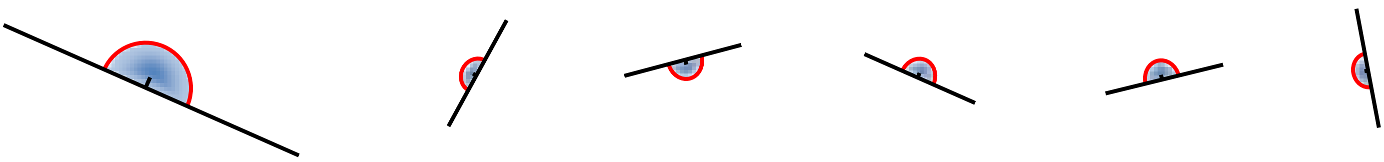
L'angle **droit** est formé par le croisement de 2 droites perpendiculaires. Il est noté par un carré au niveau de l'angle. On peut vérifier si un angle est droit en utilisant le plus grand angle de l'équerre.

Un angle saillant plus petit que l'angle droit est un angle **aigu** :

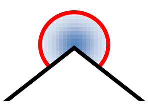
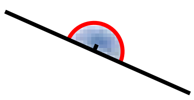
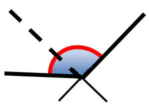
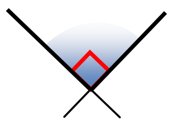
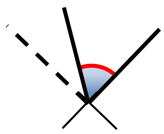
Un angle saillant plus grand que l'angle droit est un angle **obtus** :



Quand deux lignes se croisent sans former d'angle visible, on dit qu'elles forment un angle **plat** :

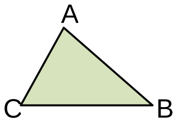
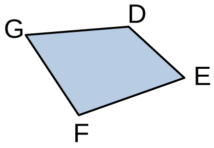
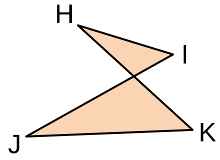
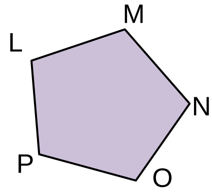


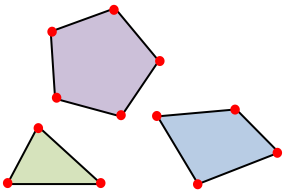
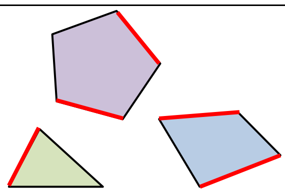
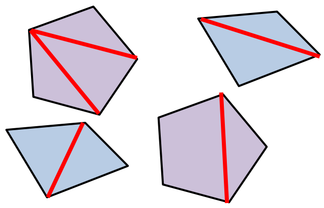
En résumé :

Rentrant	Plat	Saillant		
		obtus	droit	aigu
				

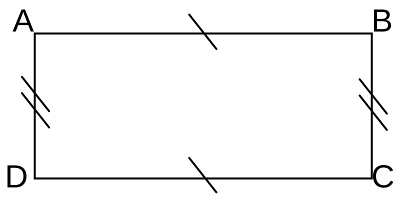
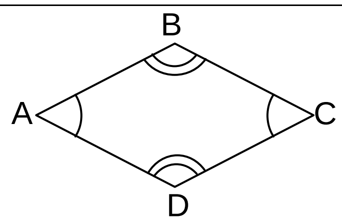
Les figures (1/2)

Les figures :

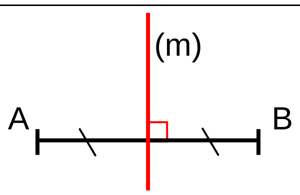
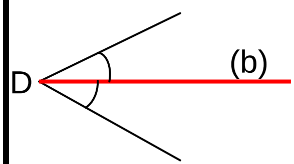
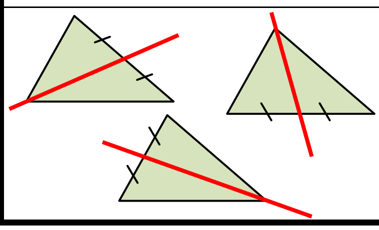
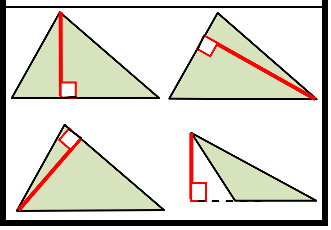
le **triangle** ABC	Le **quadrilatère** DEFG	Le quadrilatère HIJK	Le **pentagone** LMNOP
			

des **sommets**	des **côtés**	des **diagonales**
		

Notations géométriques :

Segments de <u>même longueur</u> : AB = CD ; BC = DA	Angles de <u>même ouverture</u> : $\widehat{B} = \widehat{D}$; $\widehat{A} = \widehat{C}$
	

Les segments et droites particuliers :

médiatrice de [AB]	**bissectrice** de $\widehat{D}$	**médianes** (d'un triangle)	**hauteurs** (d'un triangle)
			

Cercles et points particuliers :

Centre de gravité : croisement des médianes

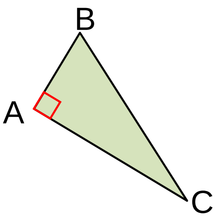
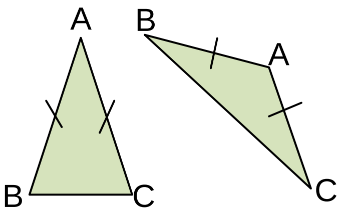
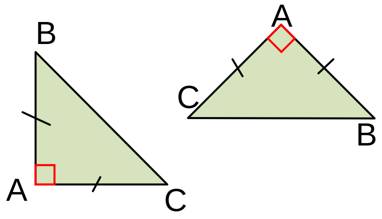
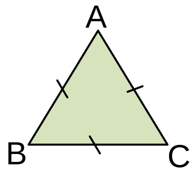
Orthocentre : croisement des hauteurs

Cercle inscrit : cercle, ayant pour centre le croisement des bissectrices et dont les 3 côtés du triangle sont des tangentes du cercle.

Cercle circonscrit : cercle passant par les sommets et dont le centre est le croisement des médiatrices.

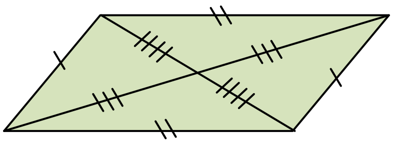
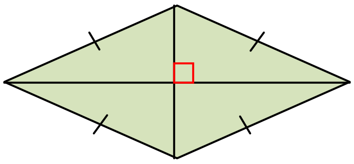
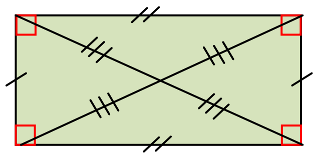
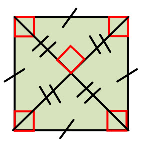
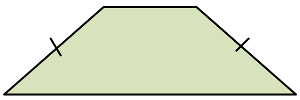
Les figures (2/2)

Les triangles particuliers :

Triangle **rectangle** $AB \perp CA$	Triangle **isocèle** (en A) AB = AC	Triangle **isocèle rectangle** (en A) AB = CA et $AB \perp AC$	Triangle **équilatéral** AB = BC = CA
			

Les autres triangles sont appelée triangles quelconques.

Les quadrilatères particuliers :

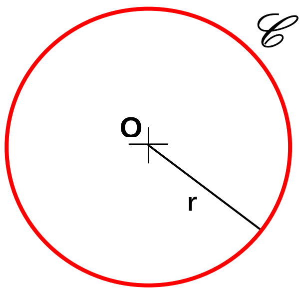
Parallélogramme : * Côtés opposés parallèles (et de même longueur) * Diagonales se coupent en leur milieu.	
Losange : Parallélogramme + * diagonales perpendiculaires * 4 côtés de mêmes longueurs	
Rectangle : Parallélogramme + * côtés consécutifs perpendiculaires (4 angles droits) * diagonales de mêmes longueurs	
Carré : Losange + Rectangle	
Trapèze : * 2 côtés opposés parallèles	
Trapèze rectangle : Trapèze + * 2 angles droits	
Trapèze isocèle : Trapèze + * les 2 côtés non parallèles sont de même longueur	

Les autres quadrilatères sont appelés quadrilatères quelconques.

Le cercle

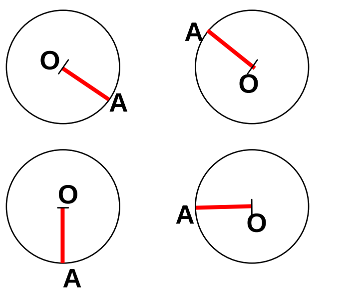
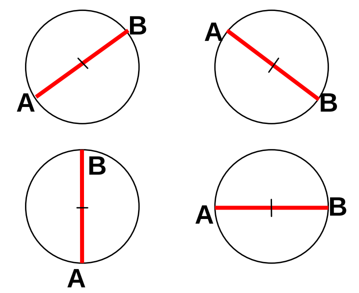
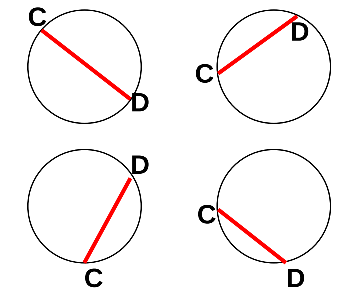
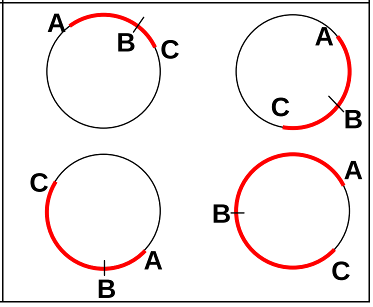
Le cercle :

Cercle $\mathscr{C}$ de centre O et de rayon r : $\mathscr{C}$ **(O, r)**

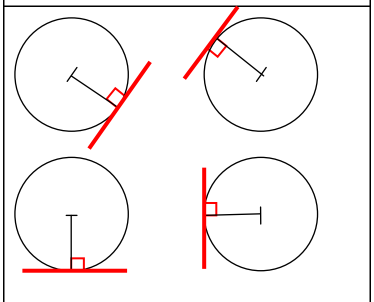


Le cercle est formé par l'ensemble des points situés à la même distance du centre O.

Les segments liés aux cercles :

des **rayons** [OA]	des **diamètres** [AB]	des **cordes** [CD]	des **arcs de cercles** $\overset{\frown}{ABC}$
			

Droites particulières :

des **tangentes**


En résumé…

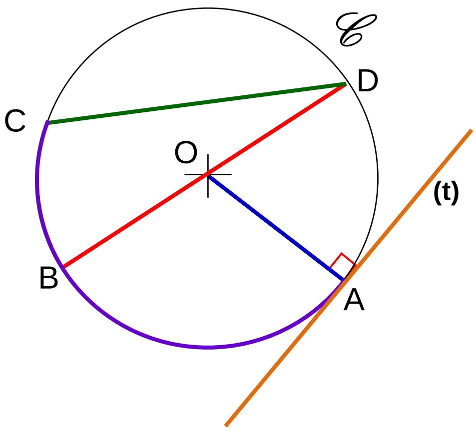
[OA] est un rayon

[BD] est un diamètre

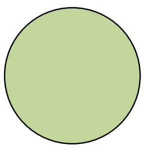
[CD] est une corde

$\overset{\frown}{ABC}$ est un arc de cercle

(t) est une tangente

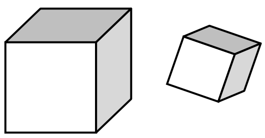
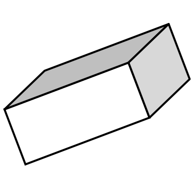
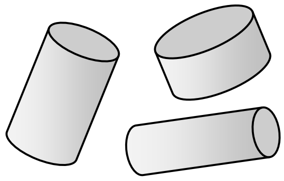
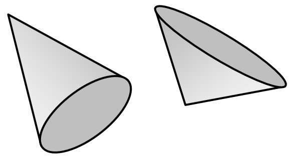


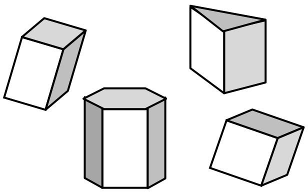
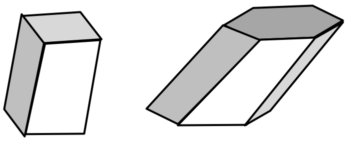
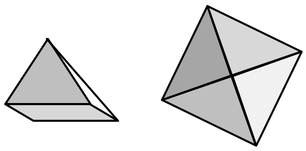
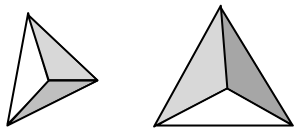
Le **disque** est la figure pleine située à l'intérieur d'un cercle :

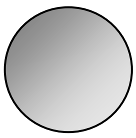
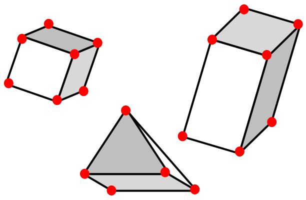
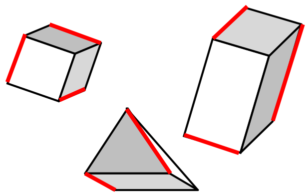
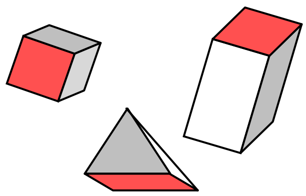


Les solides

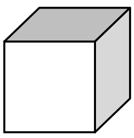
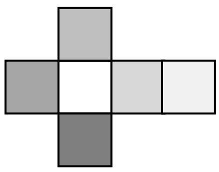
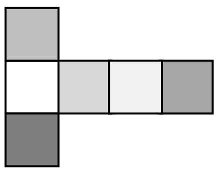
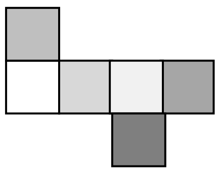
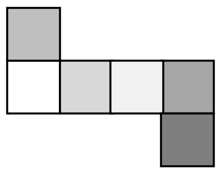
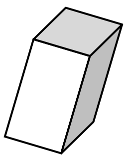
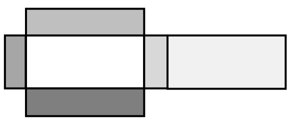
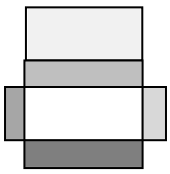
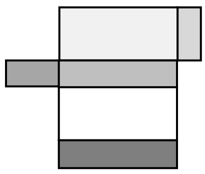
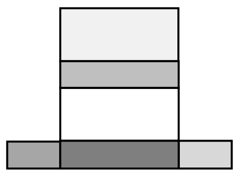
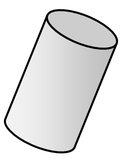
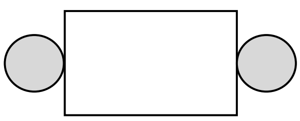
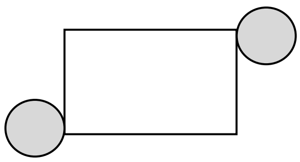
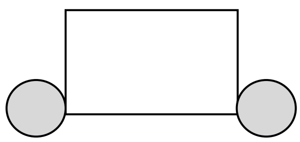
Les solides :

des **cubes**	des **pavés** droits, ou **parallélépipèdes rectangles**	des **cylindres**	des **cônes**
			

des **prismes droits**	des **prismes obliques**	Une **pyramide** à base carrée	Une **pyramide** à base triangulaire (tétraèdre)
		 Vue de dessus	 Vue de dessus

une **sphère**	des **sommets**	des **arrêtes**	des **faces**
			

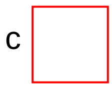
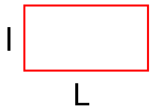
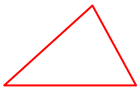
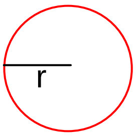
Quelques patrons :

Solides	**Patrons**			
cube 				
pavé droit 				
cylindre 				

Périmètres, Aires (superficies) et Volumes

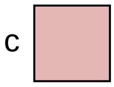
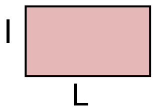
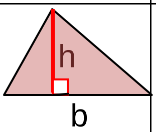
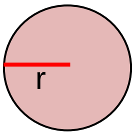
<u>Le périmètre</u> mesures la distance du contour d'une figure.

Le périmètre se calcule en m (mètres).

Forme de la surface	Calcul	Exemple
Carré 	4 x c	Carré de côté c = 3 cm Périmètre : 4 x 3 = 12 cm
Rectangle 	(largeur + Longueur) x 2	Rectangle de largeur l=3cm et Longueur L = 5cm Aire : (3 + 5) x 2 = 16 cm
Triangle 	Somme des côtés	Triangle avec des côtés de 3cm, 4cm et 5 cm : Périmètre : 3 + 4 + 5 = 12 cm
Cercle 	2 x π x rayon 2 π r	$\pi \approx 3{,}14$ Cercle de rayon r = 4 cm Périmètre : 2 x 3,14 x 4 ≈ 25,12 cm

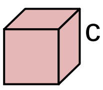
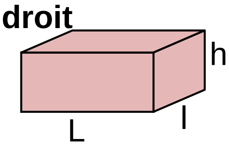
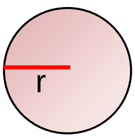
<u>L'aire</u> (ou superficie) mesure l'étendue de la surface d'une figure (ou de la face d'un volume):

L'aire se calcule en m² (mètres carrés).

Forme de la surface	Calcul	Exemple
Carré 	c x c aussi noté c^2	Carré de côté c=3cm Aire : 3 x 3 = 6 cm^2
Rectangle 	Largeur x longueur	Rectangle de largeur l=3cm et Longueur L = 6cm Aire : 3 x 6 = 18 cm^2
Triangle 	(Base x Hauteur) / 2	Triangle de base b = 3cm et de hauteur h=6cm Aire : (3 x 6) / 2 = 9cm^2
Disque 	π x rayon x rayon πr^2	$\pi \approx 3{,}14$ Disque de rayon r = 4 cm Aire : 3,14 x 4 x 4 ≈ 50,24 cm^2

<u>Le volume</u> mesure l'espace occupé par un solide, tout ce qui est à l'intérieur du solide.

Le volume se calcule en m^3 (mètres cubes)

Forme du solide	Calcul	Exemple
Cube 	c x c x c aussi noté c^3	Cube d'arrête c=3cm Volume : 3 x 3 x 3 = 9 cm^3
Pavé droit 	Largeur x longueur x hauteur	Pavé de largeur l=2cm, Longueur L = 3cm et hauteur = 4cm Volume : 2 x 3 x 4 = 24 cm^3
Sphère 	$\frac{4}{3} \times \pi \times r^3$	$\pi \approx 3{,}14$ Sphère de rayon r = 4 cm Volume : $\frac{4}{3}$ x 3,14 x 4 x 4 x 4 ≈ 267,95 cm^3