

# Mental Arithmetic

## Homework Help Pack

This pack contains some useful reference sheets and resources to support the Maths Homework. There are also some help sheets and calculation strategies in the back of the Pupil Planners.

# Units of measurement and money

## Length

10 millimetres (mm) = 1 centimetre (cm)

100 centimetres (cm) = 1 metre (m)

1000 metres (m) = 1 kilometre (km)

## Mass

1000 grams (g) = 1 kilogram (kg)

1000 kilograms (kg) = 1 tonne (t)

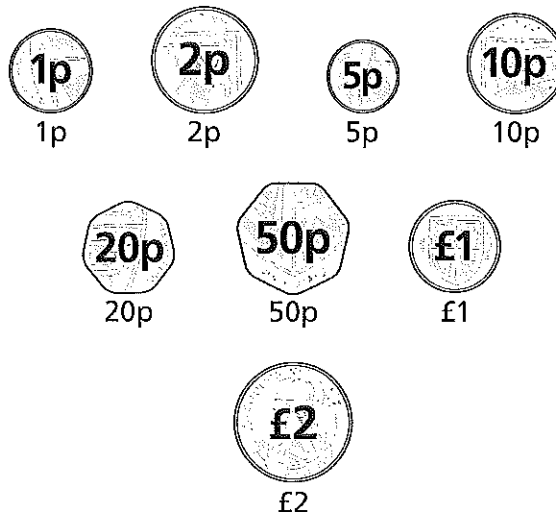
## Capacity

1000 millilitres (ml) = 1 litre (l)

100 centilitres (cl) = 1 litre

## Money

Try to learn the shapes of these coins and how much each one is worth.



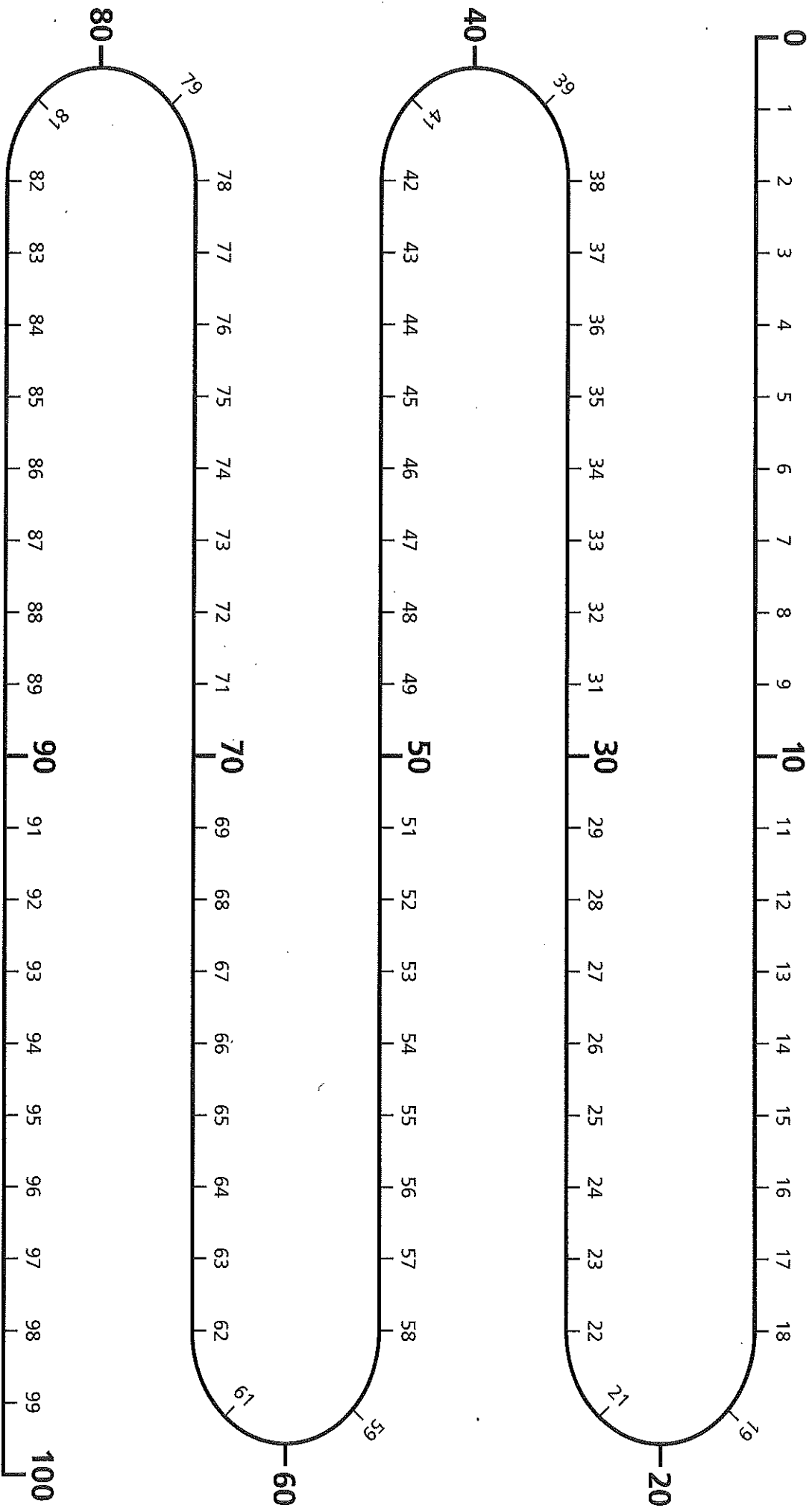
Remember that there are 100 pence (100p) in £1 and 200 pence (200p) in £2.

1ml of water takes up a volume of  $1\text{cm}^3$  and has a mass of 1g.

# Imperial units of measurement

<b>Length</b>	<b>Mass</b>	<b>Capacity</b>
12 inches (in) = 1 foot (ft) 3 feet = 1 yard (yd) 1760 yards = 1 mile	16 ounces (oz) = 1 pound (lb) 14 pounds = 1 stone	8 pints = 1 gallon
<b>Conversions</b>		
These are some of the approximate conversions between imperial and metric units.		
1 in $\approx$ 2.54cm	1 oz $\approx$ 28g	1 pint $\approx$ 0.6l
1 mile $\approx$ 1.6km	2.2lb $\approx$ 1kg	1 gallon $\approx$ 4.5l

# Number line: 0 to 100



# Counting square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

# Multiplication square

<b>X</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>1</b>	1	2	3	4	5	6	7	8	9	10	11	12
<b>2</b>	2	4	6	8	10	12	14	16	18	20	22	24
<b>3</b>	3	6	9	12	15	18	21	24	27	30	33	36
<b>4</b>	4	8	12	16	20	24	28	32	36	40	44	48
<b>5</b>	5	10	15	20	25	30	35	40	45	50	55	60
<b>6</b>	6	12	18	24	30	36	42	48	54	60	66	72
<b>7</b>	7	14	21	28	35	42	49	56	63	70	77	84
<b>8</b>	8	16	24	32	40	48	56	64	72	80	88	96
<b>9</b>	9	18	27	36	45	54	63	72	81	90	99	108
<b>10</b>	10	20	30	40	50	60	70	80	90	100	110	120
<b>11</b>	11	22	33	44	55	66	77	88	99	110	121	132
<b>12</b>	12	24	36	48	60	72	84	96	108	120	132	144

# Months of the year

Thirty days hath September

April, June, and November

All the rest have thirty-one

Excepting February alone

Which has but twenty-eight days clear

And twenty-nine in each leap year

<b>January</b>	31 days
<b>February</b>	28 days (29 in a leap year)
<b>March</b>	31 days
<b>April</b>	30 days
<b>May</b>	31 days
<b>June</b>	30 days
<b>July</b>	31 days
<b>August</b>	31 days
<b>September</b>	30 days
<b>October</b>	31 days
<b>November</b>	30 days
<b>December</b>	31 days

# Fractions chart

one-whole									
one-half					one-half				
one-third			one-third				one-third		
one-quarter		one-quarter			one-quarter			one-quarter	
one-fifth		one-fifth		one-fifth		one-fifth		one-fifth	
one-sixth		one-sixth		one-sixth		one-sixth		one-sixth	
one-seventh	one-seventh	one-seventh		one-seventh		one-seventh		one-seventh	one-seventh
one-eighth	one-eighth	one-eighth		one-eighth		one-eighth		one-eighth	one-eighth
one-ninth	one-ninth	one-ninth	one-ninth	one-ninth	one-ninth	one-ninth	one-ninth	one-ninth	one-ninth
one-tenth	one-tenth	one-tenth	one-tenth	one-tenth	one-tenth	one-tenth	one-tenth	one-tenth	one-tenth



# Fraction equivalencies

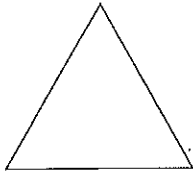
	Percentage	Decimal
$\frac{1}{2}$	50%	0.5
$\frac{1}{3}$	33.3%	0.33...
$\frac{2}{3}$	66.6%	0.66...
$\frac{1}{4}$	25%	0.25
$\frac{3}{4}$	75%	0.75
$\frac{1}{5}$	20%	0.2
$\frac{2}{5}$	40%	0.4
$\frac{3}{5}$	60%	0.6
$\frac{4}{5}$	80%	0.8
$\frac{1}{10}$	10%	0.1
$\frac{3}{10}$	30%	0.3
$\frac{7}{10}$	70%	0.7
$\frac{9}{10}$	90%	0.9
$\frac{1}{20}$	5%	0.05
$\frac{1}{50}$	2%	0.02

# Time

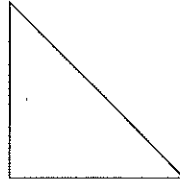
60 seconds	1 minute
15 minutes	$\frac{1}{4}$ of an hour
30 minutes	$\frac{1}{2}$ an hour
45 minutes	$\frac{3}{4}$ of an hour
60 minutes	1 hour
24 hours	1 day
7 days	1 week
52 weeks	1 year
365 days	1 year
10 years	1 decade
100 years	1 century
1000 years	1 millennium

# Triangles and quadrilaterals

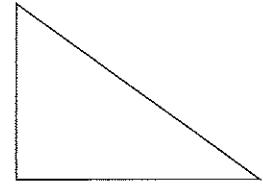
You can classify triangles by their sides.



**Equilateral triangle**  
Has three sides that are the same length.

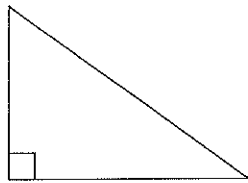


**Isosceles triangle**  
Has at least two sides that are the same length.

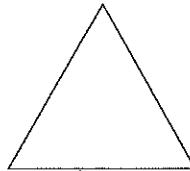


**Scalene triangle**  
Has no sides that are the same length.

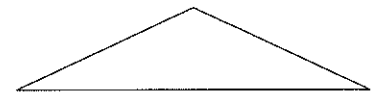
You can also classify triangles by their angles.




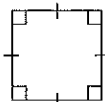
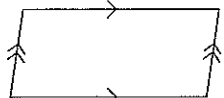
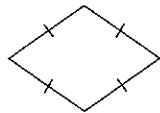
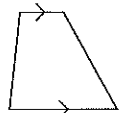
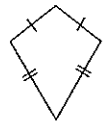
**Right-angled triangle**  
Has one angle that is a right angle (90 degrees).



**Acute triangle**  
All three angles are acute angles (less than 90 degrees).



**Obtuse triangle**  
Has one angle that is an obtuse angle (greater than 90 degrees).

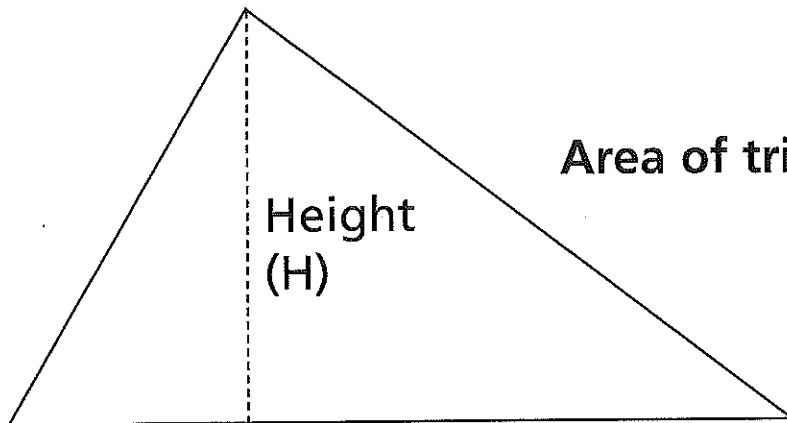
Quadrilateral	Properties	
<b>Rectangle</b>	Four right angles and opposite sides equal	
<b>Square</b>	Four right angles and four equal sides	
<b>Parallelogram</b>	Two pairs of parallel sides and opposite sides equal	
<b>Rhombus</b>	Parallelogram with four equal sides	
<b>Trapezium</b>	Two sides are parallel	
<b>Kite</b>	Two pairs of adjacent sides of the same length	

# Area

**Area of rectangle =  $L \times B$**

Breadth (B)

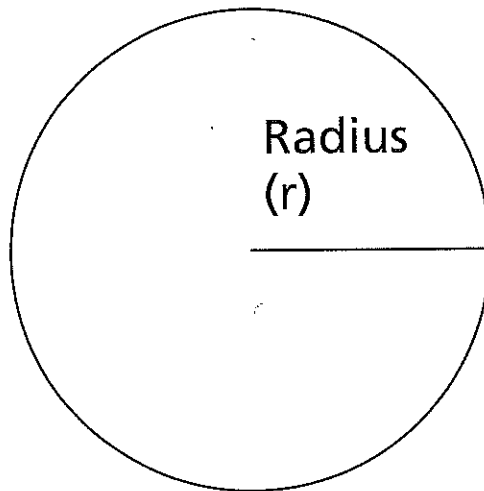
Length (L)



**Area of triangle =  $\frac{1}{2} B \times H$**

Height  
(H)

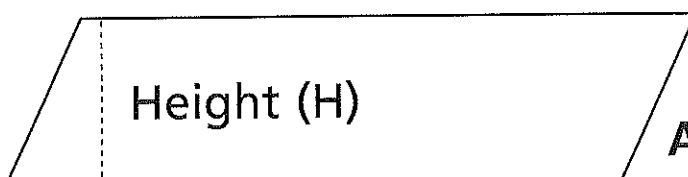
Base (B)



**Area of circle =  $\pi \times r^2$**

( $\pi$  or 'Pi' = 3.14)

Radius  
(r)



**Area of parallelogram =  $B \times H$**

Height (H)

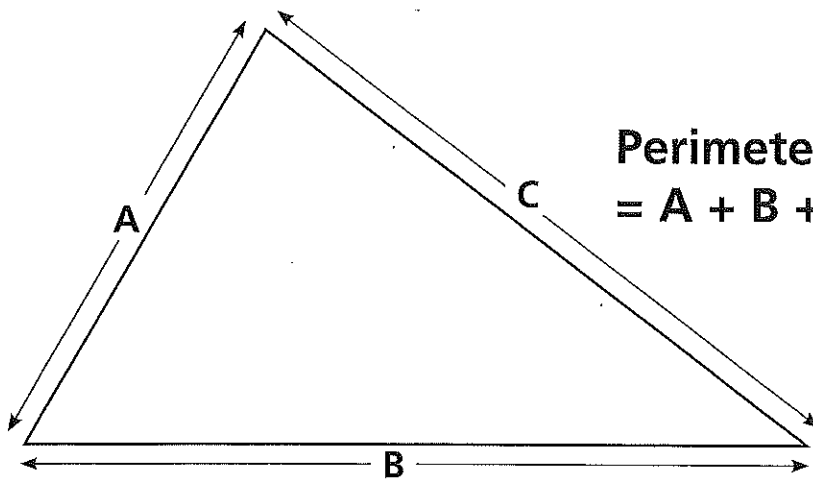
Base (B)

# Perimeter

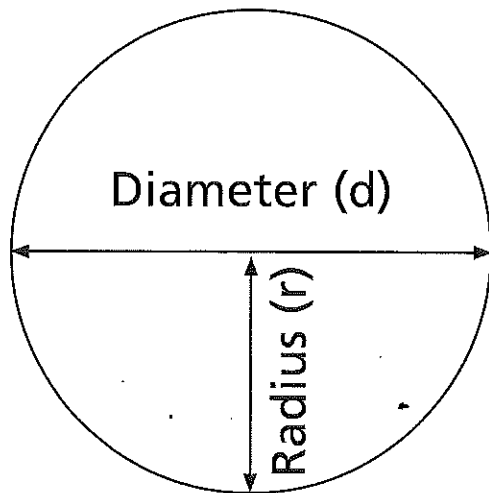
**Perimeter of rectangle**  
**=  $2 \times L + 2 \times B$**

Breadth (B)

Length (L)

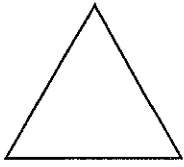


**Perimeter of triangle**  
**=  $A + B + C$**

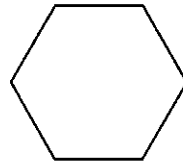


**Perimeter of circle =  $\pi \times d$**   
**Circumference =  $2\pi r$**   
**( $\pi$  or 'Pi' = 3.14)**

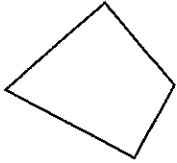
## Two-dimensional (2-D) shapes



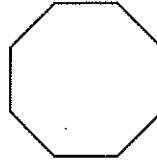
a **triangle** has three straight sides



a **hexagon** has six straight sides



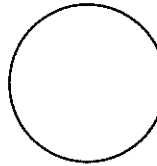
a **quadrilateral** has four straight sides



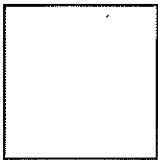
an **octagon** has eight straight sides



a **rectangle** is a quadrilateral with four right angles



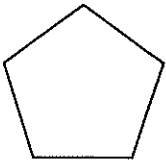
a **circle** has one curved side



a **square** has four right angles and four sides the same length

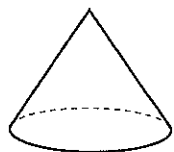


a **semicircle** has one curved and one straight side

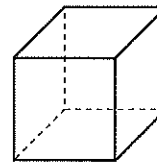


a **pentagon** has five straight sides

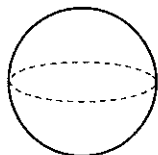
## Three-dimensional (3-D) shapes



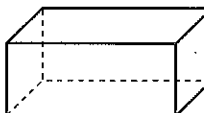
**cone**



**cube**



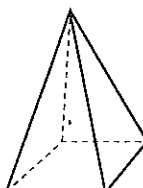
**sphere**



**cuboid**

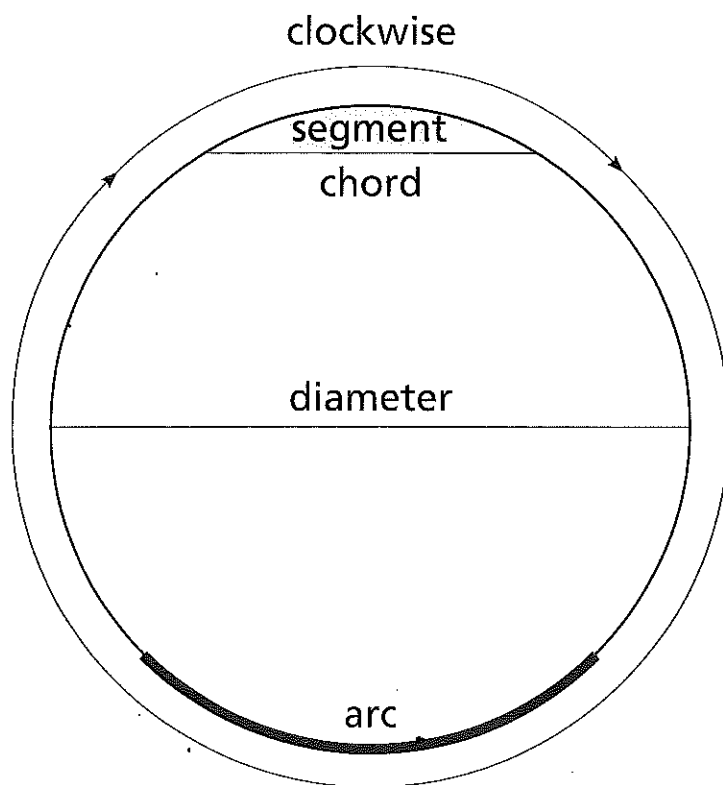
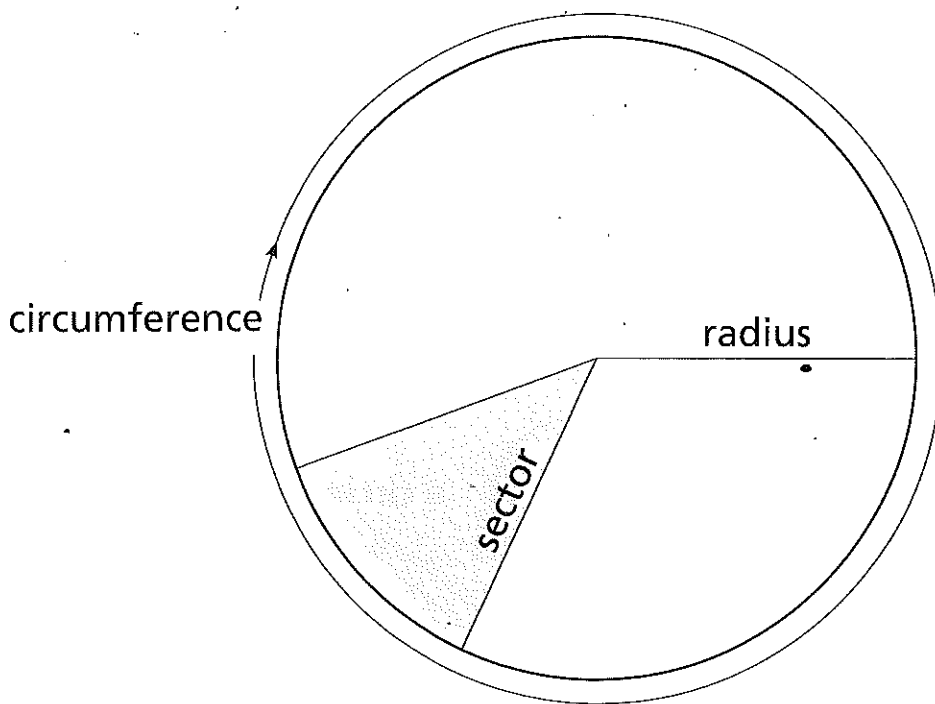


**cylinder**



**pyramid**

# Parts of a circle



# Coordinates

