

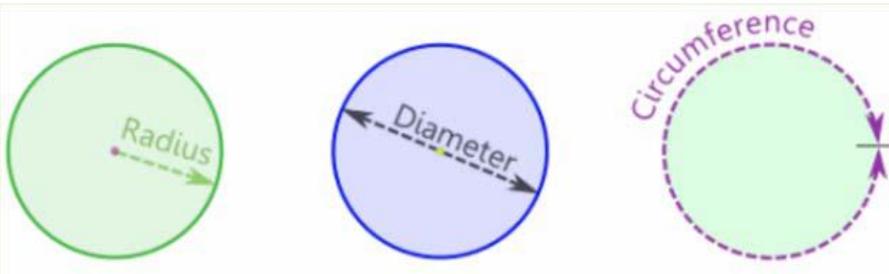
# Maths Knowledge Organiser

## YEAR 8– PART 1



### Key Language

1	<b>Ratio</b>	a part to part comparison
2	:	a colon
3	<b>Unit ratio</b>	in the form 1:n.
4	<b>Factors</b>	Factors of a number are whole numbers that multiply to make that number. e.g. 1,2,3 and 6 are factors of 6 because $1 \times 6 = 6$ and $2 \times 3 = 6$
5	<b>Perimeter</b>	the sum of the side lengths of a shape
6	<b>Gradient</b>	measure of how steep a line is.
7	<b>Double</b>	multiply by 2
8	<b>Treble</b>	multiply by 3
9	<b>Currency</b>	the money used by a country.
10	<b>Sterling</b>	the British currency
11	<b>Conversion rate</b>	the ratio between two currencies
12	<b>Similar shapes</b>	have corresponding sides and corresponding angles. The angles will stay the same.
13	<b>Variable</b>	a quantity that can take on a range of values, often denoted by a letter, x, y etc.
14	<b>Product</b>	the result when you multiply one number by another. Product of 4 and x is $4x$ .
15	<b>Integers</b>	whole numbers, e.g. 4, 270, - 6. They are not decimals or fractions.
16	<b>Commutative</b>	where a calculation can be done in any order to give the same result e.g $5 \times 4 = 4 \times 5$ $6 + 3 = 3 + 6$
17	<b>Quotient</b>	the answer you get when you divide one number by another.
18	<b>Reciprocals</b>	Two numbers that multiply to give 1. e.g. 3 and $\frac{1}{3}$ are reciprocals because $3 \times \frac{1}{3} = 1$
19	<b>Mixed fraction</b>	is made up of an integer and a fraction
20	<b>Improper fraction</b>	where the numerator is bigger than the denominator
21	<b>Equivalent fractions</b>	fractions with the same value of each other.
22	<b>Common denominators</b>	when two or more fractions have the same denominator
23	<b>Expressions</b>	made up of terms which may include letters, number and operators



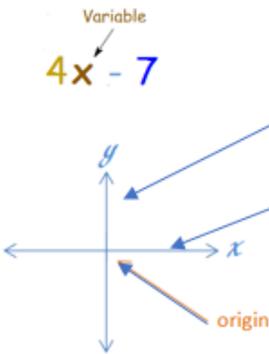
$$\frac{\text{Circumference}}{\text{Diameter}} = \pi = 3.14159...$$



A semicircle is half of a circle, bounded by the diameter and an arc.

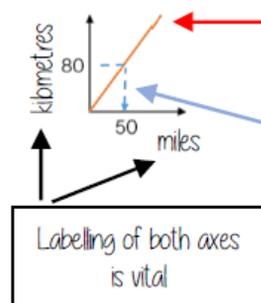
<b>Circumference</b>	the perimeter of a circle
<b>Diameter</b>	a straight line passing from one side of the circle to the other through the centre
<b>Radius</b>	the distance from the centre of the circle to the circumference. It is half the diameter.
<b>Pi</b>	how many times bigger the circumference is compared to the diameter
<b>Semi circle</b>	half a circle.

Graphs



**Vertical axis** is called the y-axis  
**Horizontal axis** is called the x-axis  
 The **origin** is where the vertical and horizontal axes meet

Conversion Graphs Compare two variables

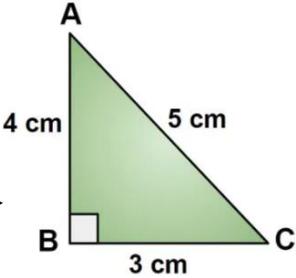
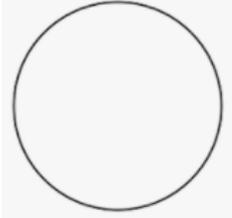


This is always a straight line because as one variable increases so does the other at the same rate

To make conversions between units you need to find the point to compare — then find the associated point by using your graph  
 Using a ruler helps for accuracy  
 Showing your conversion lines help as a "check" for solutions





1. What is the product of 2 and 3?
2. What is treble 7?
3. What do we call the name of the money used by a country?
4. What is the name of the British currency?
5. What does gradient mean?
6. What is the perimeter of a circle called?
7. What is the perimeter of this triangle? 
8. What does conversion rate mean?
9. Which axis is the vertical axis?
10. What special number do you get when you divide the circumference of a circle by the diameter?
11. Write that number to 2 decimal places.
12. If the radius of a circle is 11cm, what is the diameter?
13. Mark the radius on the circle. 
14. Write down the factors of 12.
15. What do we call the point where the horizontal and vertical axes meet?
16. What do we call the answer when we divide one number by another?
17. Do angles or side lengths always stay the same in similar shapes?
18. What is an improper fraction
19. What is a variable?
20. Do conversion graphs have straight or curved lines?
21. Sketch a semi circle
22. Which of these numbers are integers? 3, -2, 1.2,  $\frac{1}{2}$ , 6
23. What does commutative mean?
24. What do we call fractions that have the same value as each other?
25. What is a unit ratio?
26. What do we call a pair of numbers that multiply to give 1?

ANSWERS

1. 6
2. 21
3. Currency
4. Sterling
5. How steep a line is
6. Circumference
7. 12cm
8. the ratio between two currencies
9. Y
10. Pi
11. 3.14
12. 22cm
13. 
14. 1, 2, 3, 4, 6, 12
15. origin

16. Quotient
17. Angles
18. Where the numerator is bigger than the denominator
19. a quantity that can take on a range of values
20. Straight
- 21.
22. 3, -2 and 6
23. Can do in any order
24. Equivalent fractions
25. A ratio in the form 1:n
26. Reciprocals

