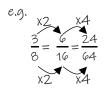
# 47 Maths Knowledge Organiser Topic 9: Fractions 1

What must I be able to do?		Key vocabulary	
	Represent fractions using area diagrams, bar models and number lines Recognise and name equivalent fractions Use equivalent fractions Sparx M410, M671	Fraction	A fraction is a <u>part of a whole</u> . It is also a ratio between two numbers separated by a vinculum (). It is represented by the <u>division</u> of one number by another.
	Compare and order numbers involving fractions  > Sparx M335	Numerator	The <u>'top' part</u> of a <u>fraction</u> – it tells us how many parts we are dealing with.
	Express one quantity as a fraction of another Find a fraction of a set of objects or quantity		
	> Sparx M158, M695, M684	Denominator	The <u>'bottom' part</u> of a <u>fraction</u> – it tells us how many parts the whole is
	Find the whole given a fraction  Multiply a whole number or fraction by a whole number		divided into.
	or fraction  Sparx M157  Divide a whole number or proper fraction by a whole number or proper fraction  Sparx M110	Equivalent	Equivalent fractions represent the same value.
		Reciprocal	The reciprocal of a number is <u>1 divided</u> by the number.
	Add and subtract fractions with like and unlike denominators  Sparx M835	Unit fraction	A fraction where the <u>numerator is 1</u> and denominator is a positive integer.

## Equivalent fractions

Found by multiplying or dividing the numerator and denominator by the same value



#### Compare/Order fractions

You need to first of all rewrite all fractions with equivalent fractions that all have the same denominator. Then you can compare/order the numerators.

e.g. 
$$\frac{5}{8}$$
 Vs  $\frac{7}{11} \rightarrow \frac{5}{8} = \frac{55}{88}$  and  $\frac{7}{11} = \frac{56}{88}$   
55 < 56 so  $\frac{5}{8} < \frac{7}{11}$  The lowest multiple of 8 and 11 is 88

#### Reciprocals

Reciprocal of an integer is  $\frac{1}{\text{integer}}$  e.g  $5 \longleftrightarrow \frac{1}{5}$ 

Reciprocal of a fraction "flips" it e.g.  $\frac{3}{5} \leftarrow \frac{5}{2}$ 

- Dividing by any number is the same as multiplying by its reciprocal.
- Multiplying by any number is the same as dividing by its reciprocal.

### Fraction of a quantity

To find a fraction of a number (an integer multiplied by a fraction), divide the number by the denominator and multiply by the numerator

e.g. 
$$45 \times \frac{3}{5} = 45 \div 5 \times 3 = 9 \times 3 = 27$$

### Multiplying two fractions

Just multiply numerators and multiply denominators

e.g. 
$$\frac{3}{7} \times \frac{2}{5} = \frac{3 \times 2}{7 \times 5} = \frac{6}{35}$$

### Dividing by a fraction

Instead of dividing by a fraction, multiply by its reciprocal

e.g. 
$$\frac{4}{9} \div \frac{4}{5} = \frac{4}{9} \times \frac{5}{4} = \frac{4 \times 5}{9 \times 4} = \frac{20}{36} = \frac{5}{9}$$

Simplify your final answer if possible

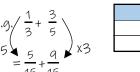
# Adding and subtracting fractions

When the denominators are the same you just add or subtract the numerators

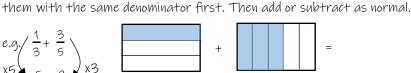
e.g. 
$$\frac{3}{7} + \frac{2}{7} = \frac{5}{7}$$

and 
$$\frac{7}{9} - \frac{3}{9} = \frac{4}{9}$$

Smallest common multiple of 3 and 5 is 15









If the denominators are different we use equivalent fractions to write



