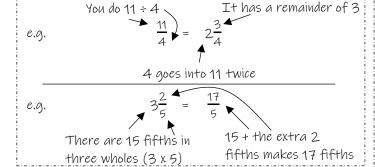
# 48 Maths Knowledge Organiser Topic 3: Fractions 2

What must I be able to do?		Key vocabulary	
You may need to revise the following:		Mixed	A combination of an
•	Year 7 Topic 7: Fractions 1	number	integer and a fraction.
New content:			Used to represent a
	Convert between improper fractions and mixed numbers		fractional total worth
	Mathswatch N35		more than one whole.
	Add and subtract fractions including mixed numbers and improper fractions	Improper	A fraction where the
	Mathswatch N41, N42a and N42b	fraction	<u>numerator</u> is <u>larger</u> than
	Use fractions within other topics e.g. area or perimeter		the <u>denominator</u> .
	Use a calculator to calculate with fractions		

## Improper fractions and mixed numbers



#### Multiplying and dividing mixed numbers

In order to multiply or divide with mixed numbers they first need to be converted to improper fractions.

e.g. 
$$5\frac{3}{7} \times 4\frac{1}{2} = \frac{38}{7} \times \frac{9}{2} = \frac{19}{7} \times \frac{9}{2} = \frac{171}{7} = 24\frac{3}{7}$$

With mixed numbers we sometimes have large numbers to multiply. Look to see if you can cancel diagonally across the multiply sign before doing the multiply. Here, 38 and 2 both divide by 2 to leave 19 and 1.

Division is done the same way as normal. Rewrite the mixed number as an improper fraction and then multiply by its reciprocal instead.

e.g. 
$$3\frac{1}{5} \div 1\frac{4}{5} = \frac{16}{5} \div \frac{9}{5} = \frac{16}{5} \times \frac{5}{9} = \frac{80}{45} = \frac{16}{9} = 1\frac{7}{9}$$
The reciprocal of  $\frac{9}{5}$  is  $\frac{5}{9}$ 

### Adding and subtracting mixed numbers

When adding or subtracting fractions, you can do the whole number and the fraction part separately. The fraction part will still need a common denominator and you may be left with an improper or negative fraction to simplify at the

e.g. 
$$4\frac{2}{3} + 3\frac{2}{5}$$
  
  $4 + 3 = 7$  (Add the integers)

and 
$$\frac{2}{3} + \frac{2}{5}$$
 (Add the fractions)  
 $x5$  (Add the fractions)  
 $x5$  (Convert into a mixed number)

So 
$$7 + 1\frac{1}{15} = 8\frac{1}{15}$$
 (Add the 2 answers together)

e.g. 
$$3\frac{1}{4} - 1\frac{2}{3}$$

$$3-1=2$$
 (subtract the integers)

and 
$$\frac{1}{4} - \frac{2}{3}$$
 (subtract the fractions)  
 $x = \frac{3}{12} - \frac{8}{12} = \frac{-5}{12}$  The fraction is negative so needs subtracting from the remaining integers

There are 12 twelfths in a whole one so if we subtract 5 twelfths we must have 7 twelfths remaining from that whole.

# Using a calculator for fractions



This is the fraction button. It allows you to write fractions on the calculator which will display like this: 🔼

In order to write a mixed number you need to put the whole number in first, then Press the 2<sup>nd</sup> F button followed by the fraction button. Now put in the fractional part of the mixed number:  $6\frac{3}{4}$ 

The change button will convert between mixed numbers, improper fractions and  $7\frac{7}{20}\frac{147}{20}$  7.35 their decimal equivalent: