

# Maths Star

## Mixed Fractions & Top Heavy Fractions

**WHAT?!** Mixed fractions are fractions with a whole number and a fraction, such as  $1\frac{1}{2}$  and top heavy fractions are fractions where the number on the top is bigger than the number on the bottom.

**WHY?!** We can change between the two types, as sometimes we need to change a mixed fraction to a top heavy fraction in order to do fraction sums. Then, often we need to change a top heavy fraction back to a mixed fraction at the end of a sum.

### HOW?!

**Example: Change  $1\frac{1}{2}$  to a top heavy fraction**

Here, we have a denominator of 2. The whole number 1 as a fraction over 2 is  $\frac{2}{2}$ , so we have  $\frac{2}{2}$  and  $\frac{1}{2}$ .  $\frac{2}{2} + \frac{1}{2} = \frac{3}{2}$

With bigger numbers, the simplest method is to multiply the whole number by the denominator and add it to the numerator, so:

$3\frac{1}{4} \Rightarrow 3 \times 4 + 1 = 13$ , so the fraction becomes  $\frac{13}{4}$

**Example: Change  $\frac{5}{2}$  to a mixed fraction**

Here, we have a denominator of 2. A whole number will be  $\frac{2}{2}$ , so we need to work out how many times 2 will go into 5 to find what the whole number will be, then work out what is left, so:

$5 \div 2 = 2$ , remainder 1, so we have 2 whole numbers with one left over. Whatever is left over, we make into a fraction, so the remainder 1 becomes  $\frac{1}{2}$ . So, we have  $2\frac{1}{2}$

Try it yourself:

Change the following into top heavy fractions:

- 1)  $1\frac{3}{4} = \frac{4}{4} + \frac{3}{4} = \frac{7}{4}$
- 2)  $2\frac{1}{5} \Rightarrow 2 \times 5 + 1 = 11$ , so it's  $\frac{11}{5}$
- 3)  $3\frac{1}{4} \Rightarrow 3 \times 4 + 1 = 13$ , so it's  $\frac{13}{4}$
- 4)  $2\frac{3}{7} \Rightarrow 2 \times 7 + 3 = 17$ , so it's  $\frac{17}{7}$
- 5)  $4\frac{3}{5} \Rightarrow 4 \times 5 + 3 = 23$ , so it's  $\frac{23}{5}$

Change these into mixed fractions:

- 1)  $\frac{12}{5}$
- 2)  $\frac{6}{5}$
- 3)  $\frac{9}{7}$
- 4)  $\frac{23}{11}$
- 5)  $\frac{16}{3}$

- 1)  $12 \div 5 = 2$  remainder 2  $\Rightarrow 2\frac{2}{5}$
- 2)  $6 \div 5 = 1$  remainder 1  $\Rightarrow 1\frac{1}{5}$
- 3)  $9 \div 7 = 1$  remainder 2  $\Rightarrow 1\frac{2}{7}$
- 4)  $23 \div 11 = 2$  remainder 1  $\Rightarrow 2\frac{1}{11}$
- 5)  $16 \div 3 = 5$  remainder 1  $\Rightarrow 5\frac{1}{3}$

Handy ★ formulas:

**Mixed -> Top Heavy =**  
 $\frac{\text{whole number} \times \text{denominator} + \text{numerator}}{\text{denominator}}$

**Top Heavy -> Mixed =**  
Numerator  $\div$  denominator = whole number  
Remainder becomes the fraction bit!