

Year 6 SATS maths method help sheet.

Short division

$$186 \div 6 = 031$$

no groups of 6
can be made

$3 \times 6 = 18$

$1 \times 6 = 6$

Long division

$$15 \overline{) 3640}$$

$$\begin{array}{r} 2 \\ 15 \overline{) 3640} \\ - 30 \\ \hline 6 \end{array}$$

15 into 3 doesn't go, so look at the next digit.

15 goes into 36 two times, so put a 2 above the 6.
 $15 \times 2 = 30$

Take that 30 away from the 36 to get your remainder:
 $36 - 30 = 6$

$$\begin{array}{r} 24 \\ 15 \overline{) 3640} \\ - 30 \\ \hline 64 \\ - 60 \\ \hline 4 \end{array}$$

Next, carry the 4 down to make 64.
15 goes into 64 four times, so put a 4 above the 4.
 $15 \times 4 = 60$

Take 60 from the 64 to get your remainder:
 $64 - 60 = 4$

$$\begin{array}{r} 242 \\ 15 \overline{) 3640} \\ - 30 \\ \hline 64 \\ - 60 \\ \hline 40 \\ - 30 \\ \hline 10 \end{array}$$

Carry the 0 down to make 40.

15 goes into 40 two times, so put a 2 above the 0.
 $15 \times 2 = 30$

Take 30 from the 40 to get your remainder:
 $40 - 30 = 10$

Long multiplication

As in **column addition and column subtraction**, the numbers are positioned in a column as follows:

First we multiply each of the digits 391 by 9.

$9 \times 1 = 9$
 $9 \times 9 = 81$ (put the 1 down; carry the 8)
 $9 \times 3 = 27$
 $27 + (\text{carried}) 8 = 35$

Now we multiply each of the digits 391 by 3.
 Because it is actually 30, not 3, we put a zero down first.

$3 \times 1 = 3$
 $3 \times 9 = 27$ (put the 7 down and carry the 2)
 $3 \times 3 = 9$ (plus the 2 which makes 11)

Last of all, we add the results of our calculations to get the answer.

$3519 + 11730 = 15249$

Fractions

If fractions have the same denominator then you can add or subtract the numerators. Leave the denominators alone.

If the denominators are different, you must find the common denominators first before adding or subtracting. This method can also be used for finding equivalent fractions.

B $\frac{3}{8} + \frac{2}{5}$

Multiples of 8 x1 x2 x3 x4 x5
 8, 16, 24, 32, (40), 48

Multiples of 5 x1 x2 x3 x4 x5 x6 x7 x8
 5, 10, 15, 20, 25, 30, 35, (40), 45

The lowest common denominator is 40

$\frac{3}{8} \times \frac{5}{5} = \frac{15}{40}$ $\frac{2}{5} \times \frac{8}{8} = \frac{16}{40}$

$\frac{15}{40} + \frac{16}{40}$

Multiplying fractions

Multiply the
numerators

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$$

Multiply the
denominators

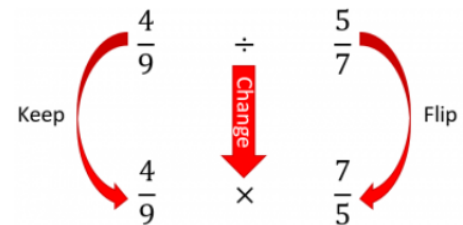
$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$$

Reduce the fraction if
necessary

$$\frac{6}{20} = \frac{3}{10}$$

Dividing fractions

Remember to *KEEP, CHANGE, FLIP!*



So, this division question has turned into a multiplication question, which we know how to do!

$$\frac{4}{9} \times \frac{7}{5} = \frac{4 \times 7}{9 \times 5} = \frac{28}{45}$$

$$\frac{4}{9} \div \frac{5}{7} = \frac{28}{45}$$

Fractions of an amount.



What are $\frac{2}{3}$ of 18?



18

6 6 6

$\div 3$

$\times 2$

$$\frac{2}{3} \text{ of } 18 = 12$$

Divide by the denominator and multiply by the numerator.

Percentages

Divide the total number by 100 then multiply by the percentage you want to find.

$$\begin{aligned} 80\% \text{ of } 5 &= (80 \div 100) \times 5 \\ &= 0.80 \times 5 \\ &= 4 \quad \checkmark \end{aligned}$$

$$25\% \text{ of } 60 = (25 \div 100) \times 60 = 0.25 \times 60 = 15 \quad \checkmark$$

$$\begin{aligned} 12.5\% \text{ of } 300 &= (12.5 \div 100) \times 300 \\ &= 0.125 \times 300 \\ &= 37.5 \quad \checkmark \end{aligned}$$

Equivalents - below are facts you need to know!

