Write as a product of prime factors.

(i) $48 = 2^a \times 3$

(ii) $189 = 3^b \times c$

(iii) $120 = 2^d \times e \times f$

What are the values of 'a' to 'f'?

Percentage of an amount.

Jo got 36 out of 80 in an English test.

(i) Work out 36 out of 80 as a percentage.

Jo got 65% of the total number of marks in a French test. Jo got 39 marks.

(ii) Work out the total number of marks for the French test.

Exchange Rates.

Olivia bought a necklace in the USA.
Olivia paid 108 dollars ($).
Lucy bought an identical necklace in Germany. Lucy paid 117 Euros (€).

£1 = $1.44

£1 = 1.6€

Calculate in pounds the difference between the prices paid for the two necklaces

HCF and LCM.

If $x = 2 \times 3^2 \times 5$ and $y = 2^3 \times 3 \times 7$.
Find the LCM and HCF of 'x' and 'y'.

If one lamp flashes every 4 seconds and another flashes every 6 seconds. If both lamps start flashing together, after how many seconds will they flash together and how many times will they flash together in a minute?

Ratio and proportion.

The ratio of girls to boys in a school is 2:3.

(i) What fraction of these students are boys?

In year 8 the ratio of girls to boys is 1:3. There are 300 students in year 8,

(ii) Work out the number of girls in year 8.

*Use of a calculator.

Find the value of the following to 3sf.

(i) $\frac{19+61}{20+32}$

(ii) $\sqrt{\frac{4}{9+24}}$

Standard form

(i) Write 40 000 000 in standard form.

(ii) Write 3×10^{-5} as an ordinary number

(iii) Work out the value of $3 \times 10^{-5} \times 40\,000\,000$.
Give your answer in standard form.

Calcs with fractions.

Work out, giving your answers as a fraction in its simplest form.

(i) $\frac{2}{3} \times \frac{3}{4}$

(ii) $1\frac{2}{3} + 2\frac{3}{4}$

Similar Calcs.

Given that $97 \times 123 = 11\,931$, write down the value of

(i) 9.7×12.3

(ii) $0.97 \times 123\,000$

(iii) $11.931 \div 9.7$

Estimation.

Estimate the value of ...

(i) $\frac{6.2 \times 7.2}{0.21}$

(ii) $\frac{8.9^2}{0.49}$

Reverse Percentages.

In a sale all prices are reduced by 15%. The sale price of a shirt is £15.64, calculate the normal price of the shirt.

*Compound interest.

The depreciation of a car is 20% each year. The value of the car is £8 500. Work out the value of the car at the end of 3 years.

£200 is invested for 3 years at 5% per annum compound interest. Work out the total interest earned over the 3 years.

*Calculator allowed

courtesy of Dave Russell