

ROUNDING OFF USING DECIMAL PLACES

Examples

① Round off 3.2713 to 1 decimal place

1st decimal place
look at the next figure to decide whether to round up

$$= \underline{\underline{3.3}} \quad (1 \text{ dp})$$

② Round off 5.27152 to 3 dp

3rd dp
look at this to decide

$$= \underline{\underline{5.272}} \quad (3 \text{ dp})$$

③ Round off 36.7962 to 2 dp.

$$= \underline{\underline{36.80}} \quad (2 \text{ dp})$$

In this situation we do need to write this 0

ROUNDING - SIGNIFICANT FIGURES

Examples

① Round 114723 to 3 s.f.

Answer: 115000
the 3 s.f. 'placeholders' to keep the numbers in the correct columns

② Round 30654 to 3 s.f.

30700
the 3 sf

③ Round 0.0005748 to 2 s.f.

0.00057
placeholders the 2 s.f.

④ Round 469832 to 3 sf

470000
3 sf placeholders

- Zeros at the beginning are not significant
- Zeros between other digits are significant
- Zeros at the end are not significant unless it is like example ④

Estimating

We can get an estimate of the answer to a sum by rounding each number to 1 significant figure.

Examples

$$\textcircled{1} \quad 376.8 \times 5281 \approx 400 \times 5000 \\ = 2000000$$

$$\textcircled{2} \quad 528.3 \times 0.0327 \approx 500 \times 0.03 \\ = 15.00 \\ = \underline{\underline{15}}$$

$$\textcircled{3} \quad 4.73 \times 0.00689 \approx 5 \times 0.007 \\ = 0.035$$

$$\textcircled{4} \quad 0.628 \times 0.00031 \approx 0.6 \times 0.0003 \\ = 0.00018$$

(1 + 4 = 5 figure after point)

$$\textcircled{5} \quad 783 \div 23.91 \approx \frac{800}{20} \\ = 40$$

$$\textcircled{6} \quad 643.7 \div 0.0278 \approx \frac{600}{0.03} \xrightarrow{\times 100} \frac{60000}{3} \\ = 20000$$

$$\textcircled{7} \quad 0.0876 \div 4.31 \approx \frac{0.09}{4}$$

(bottom is already a whole number - no need to make the top into a whole number)

$$\approx \frac{0.08}{4} = 0.02$$

(since 9 doesn't divide by 4 exactly, change it into the nearest number which does.)

$$\begin{aligned} \textcircled{8} \quad & \frac{873}{1793 \times 0.000024} \approx \frac{900}{2000 \times 0.00002} \\ & = \frac{900}{0.04000} \\ & = \frac{90000}{4} \\ & \approx \underline{\underline{20000}} \end{aligned}$$

(make the BOTTOM a whole number)