

# DECIMALS

9/11/09

## Adding / Subtracting

- line the points up
- Fill in any gaps with zeros

e.g  $13.1 - 5.37$

$$\begin{array}{r}
 0\overset{1}{2} \quad \overset{1}{0} \\
 13.\overset{1}{0} \\
 - \quad 5.37 \\
 \hline
 7.73
 \end{array}$$

## Multiplying

- No need to line up the points
- Do the sum ignoring the points
- Position the point in the answer using the rule :  
 "number of digits after the point in the answer equals total number of digits after the point in the two numbers being multiplied".

## Examples

$$\textcircled{1} \quad 0.\underbrace{03}_2 \times 0.\underbrace{7}_1 = 0.\underbrace{021}_3$$

$$\textcircled{2} \quad 0.\underbrace{008}_3 \times 0.\underbrace{05}_2 = 0.\underbrace{00040}_5 \text{ or } 0.0004$$

$$\textcircled{1} \quad 0.23 \times 0.4$$

$$\begin{array}{r} 0.23 \\ \times 0.4 \\ \hline 0.092 \end{array}$$

$$\textcircled{2} \quad 1400 \times 0.6$$

$$\begin{array}{r} 1400 \\ \times 0.6 \\ \hline 840.0 \end{array}$$

$$\textcircled{3} \quad 300 \times 0.29 = 0.29 \times 100 \times 3$$

$$= 29 \times 3$$

$$= \underline{\underline{87}}$$

$$\begin{array}{r} 29 \\ \times 3 \\ \hline 87 \end{array}$$

$\textcircled{4}$

$$\begin{array}{r} 4.6 \\ \times 2.7 \\ \hline 322 \\ 920 \\ \hline 12.42 \end{array}$$

# Dividing

To divide a decimal by a whole number, we just need to keep the points in line

eg.  $19.48 \div 8$

$$\begin{array}{r} 02.435 \\ 8 \overline{) 19.480} \end{array}$$

We can add zeroes as required here

If we have to divide by a decimal, we need to change the sum first so that we divide by a whole number.

## Examples

①  $0.8 \div 0.02$

This is  $\frac{0.8}{0.02} \xrightarrow{\times 100} \frac{80}{2} = \underline{\underline{40}}$

②  $0.324 \div 0.4$

$$= \frac{0.324}{0.4} \xrightarrow{\times 10} \frac{3.24}{4}$$

We only need to make the bottom into a whole number

$$\begin{array}{r} 0.81 \\ 4 \overline{) 3.24} \end{array}$$

Answer 0.81

## Rounding off

Sometimes a number will have more decimal places than we need.

In this case we can round it off using the rule:

- if the next digit is 5 or above, round up
- if it is 4 or below, don't round up.

e.g. ①  $1.47532$  to 2 decimal places

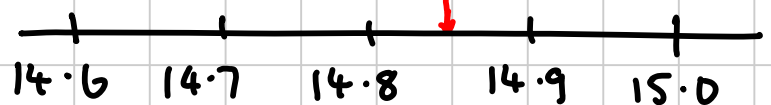
$$= \underline{\underline{1.48}}$$

This number is 5 so increase the 7 by 1

②  $14.8496$  to 1 decimal place

$$= \underline{\underline{14.8}}$$

$14.8496$



③  $14.8496$  to 3 decimal places

$$= \underline{\underline{14.850}}$$

We round the 9 up to 10, so we carry 1 onto the 4

④ Work out  $38 \div 7$  to 2 decimal places

$$\begin{array}{r} 05.428 \\ 7 \overline{) 38.000} \end{array}$$

We can stop after 3 decimal places because we can now see whether we need to round up

Answer : 5.43