Multiplying & Dividing by 10, 100 & 1000

Move Digits Left to Multiply by 10, 100 or 1000

If you're multiplying by 10, move the digits **ONE PLACE** to the **LEFT**.

$68 \times 10 = \underline{680}$

| 6 | 8 | . |

| 6 | 8 | 0 | . |

Add a decimal point if there isn't one.

Fill in empty places before the decimal point with **zeros**.

If you multiply by 100, move the digits **TWO PLACES** to the **LEFT**.
(The number of **zeros** tells you the number of **places** to move.)

$43.2 \times 100 = \underline{4320}$

| | 4 | 3 | . | 2 |

| 4 | 3 | 2 | 0 | . | 0 |

| 4 | 3 | 2 | 0 |

Add a zero in here.

There's no need to add zeros **after** the decimal point.

If you multiply by 1000, move the digits **THREE PLACES** to the **LEFT**.

$17.9 \times 1000 = \underline{17\,900}$

| | 1 | 7 | . | 9 |

| 1 | 7 | 9 | 0 | 0 | . | 0 |

| 1 | 7 | 9 | 0 | 0 |

You don't need a zero here.

The two gaps before the decimal point need to be filled in with zeros.

Move Digits Right to Divide by 10, 100 or 1000

To divide by 10 move the digits **ONE PLACE** to the **RIGHT**.

$45 \div 10 = \underline{4.5}$

| 4 | 5 | . |

| 4 | . | 5 |

You need to put a decimal point here.

To divide by 100 move the digits **TWO PLACES** to the **RIGHT**.

$3.6 \div 100 = \underline{0.036}$

| 3 | . | 6 | | |

| | . | 3 | 6 |

| 0 | . | 0 | 3 | 6 |

Fill in the gaps with zeros.

You might have to add or remove zeros.

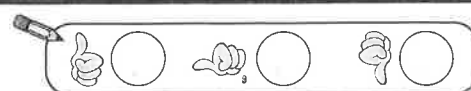To divide by 1000 move the digits **THREE PLACES** to the **RIGHT**.

$700 \div 1000 = \underline{0.7}$

| 7 | 0 | 0 | . | | |

| | | | . | 7 | 0 | 0 |

| 0 | . | 7 | 0 | 0 |

Add a decimal point.

Add a zero at the start.

You can remove these zeros.

"I can multiply or divide numbers by 10, 100 or 1000."

Worked Examples

1 Work out **63.54 × 1000**.

1) You're multiplying by **1000**, so move the digits **three places** to the **left**.

2) Fill up the empty place before the decimal point with a **zero**.

| | | | 6 | 3 | . | 5 | 4 |

| 6 | 3 | 5 | 4 | 0 | . | | |

63 540

2 A single daffodil bulb costs **54p**. Rimi buys **10** daffodil bulbs. How much does she spend on daffodil bulbs in total? Give your answer in **pounds**.

| 5 | 4 | . |

| 5 | 4 | 0 | . |

| 5 | 4 | 0 | . | | |

| | 5 | . | 4 | 0 |

1) You're multiplying by **10**, so move the digits **one place** to the **left**.

2) Fill up the empty place before the decimal point with a **zero**.

3) **100p = £1**, so **divide** your answer by **100**. Move the digits **two places** to the **right**.

Rimi spends £5.40

3 Calculate **8.4 ÷ 100**.

1) You're dividing by **100**, so move the digits **two places** to the **right**.

2) Fill up the empty places at the start with **zeros**.

| 8 | . | 4 | | |

| 0 | . | 0 | 8 | 4 |

0.084

Ten things I like about Maths...

Don't forget — move the digits **LEFT** when multiplying and **RIGHT** when dividing. The numbers get bigger when multiplying and smaller when dividing. Simple.

Order of Operations

Always do Calculations in a Certain Order

In some calculations, there's more than one thing to do.
If you want to find $\underline{8 - 1 \times 2}$, what do you do first? Subtract or multiply?

Luckily, there's a rule that tells you the order to do things: **BODMAS**

B	O	D	M	A	S
Brackets (see below)		Division	Multiplication	Addition and	Subtraction

So for $8 - 1 \times 2$, you'd do the
multiplication first, then the subtraction.

Answer: $8 - 2 = \underline{6}$

Brackets tell you which Step to do First

Some number sentences have brackets in.
The brackets show you which bit to do first.

$10 \div (2 + 3) = ?$

This means do the addition first: $2 + 3 = 5$
Then do the division: $10 \div 5 = \underline{2}$

Always Follow the BODMAS Rules

Make sure you read the question carefully.

EXAMPLE: Stu works out $12 - (3 + 6) \div 3 = 1$. Is Stu correct?
Explain your answer.

1. Remember the BODMAS rules.
   Work out the brackets first. $\quad 12 - (3 + 6) \div 3 = 12 - 9 \div 3$

2. Now divide... $\quad 12 - 9 \div 3 = 12 - 3$ 3. ...then subtract. $\quad 12 - 3 = 9$

Stu is **INCORRECT**. The correct answer is $\underline{9}$.

"I know the order to do things in a calculation."

Worked Examples

1 Work out $5 \times (4 - 1)$.

1. BODMAS says to do the brackets first.
2. Now work out the multiplication.

$5 \times (4 - 1) = 5 \times 3 \quad \leftarrow 4 - 1 = 3$

$= 15$

2 Which of the following is correct?
$6 - 4 + 1 = 1 \qquad (6 - 4) + 1 = 1 \qquad 6 - (4 + 1) = 1$

1. Work out the first calculation.
   BODMAS says do addition and subtraction together — so just work from left to right.
   It doesn't equal 1, so this is incorrect.

2. Now work out the second calculation.
   BODMAS says work out the brackets first, then add. It doesn't equal 1, so this is incorrect.

3. Finally, work out the last calculation.
   Work out the brackets first.
   Then subtract from 6.

$6 - 4 + 1 = 3$

$(6 - 4) + 1 = 2 + 1 \quad \leftarrow 6 - 4 = 2$
$= 3$

$6 - (4 + 1) = 6 - 5 \quad \leftarrow 4 + 1 = 5$
$= 1$

The correct calculation is
$6 - (4 + 1) = 1$

3 Work out $36 \div (4 + 5) \times 2$.

$36 \div (4 + 5) \times 2 = 36 \div 9 \times 2$

$36 \div 9 \times 2 = 4 \times 2 \quad \leftarrow 36 \div 9 = 4$

$4 \times 2 = 8$

8

1. BODMAS says to do the brackets first. $\quad 4 + 5 = 9$

2. Next, work out the division.

3. Then multiply.

In first place — the brackets...

When you're given a long maths calculation, remember the BODMAS rules.
If you just work from left to right, you might get the wrong answer.

Multiplying & Dividing by 10, 100 & 1000

1 Work out:

277×10

$5896 \div 1000$

2 marks

2 Zach is organising a party. Enough food for 10 guests costs £35.

If there are 100 guests at the party, how much will the food cost?

£

1 mark

3 Work out:

6.7×1000

$21.5 \div 100$

2 marks

4 Draw lines to match each calculation with the correct answer.

25.4 × 100	0.254
25.4 ÷ 10	254
25.4 ÷ 100	2540
25.4 × 10	2.54

1 mark

Multiplying & Dividing by 10, 100 & 1000

5 Fill in the missing numbers.

$3.914 \times \boxed{} = 3914$ $\boxed{} \div 10 = 0.112$

2 marks

6 The manager of a stationery shop buys 100 identical notebooks for £82.

How much does each notebook cost in pence?

p

1 mark

7 Here are the ingredients for one bottle of blackcurrant juice.

- 450 g of blackcurrants
- 150 ml of water
- 225 g of sugar

Rita is making 10 bottles. How many kilograms of sugar does she need?

(Hint: 1 kg = 1000 g)

kg

1 mark

8 Tickets to a concert cost £6.50 each.

Work out the cost of 100 tickets.

£

1 mark

Use your answer above to work out the cost of 300 tickets.

£

1 mark

"I can multiply or divide numbers by 10, 100 or 1000."

Estimation and Accuracy

1 Luca cycles 7.1 miles each day. Estimate how far he cycles in 5 days.

[_____] miles

2 Josie calculates 63 × 19 = 1197.

Write down an estimation she could do to check her answer.

[_____] × [_____] = [_____]

1 mark

3 By estimating, circle the correct answer to 47.94 ÷ 9.4.

3.2   5.1   7.3   9.4

1 mark

4 Which of these calculations would you use to estimate 3.82 × 15.24?
Write the calculation and explain your choice.

3.8 × 15.2   4 × 15   5 × 20

[   ]

1 mark

5 Estimate the answer to 408 ÷ (6.3 + 13.7).

[_____]

1 mark

"I can estimate to check the answer to a calculation."

Section Two — Calculations