

TARGET To solve problems involving the calculation of percentages of amounts.

Examples

10% of 800 m

 $\frac{1}{10}$ of 800 m

 $800 \text{ m} \div 10$

80 m

30% of 800 m

 $(10\% \text{ of } 800 \text{ m}) \times 3$
 $80 \text{ m} \times 3$

240 m

5% of 800 m

 $(10\% \text{ of } 800 \text{ m}) \div 2$
 $80 \text{ m} \div 2$

40 m

75% of 800 m

 $\frac{3}{4}$ of 800 m

 $(800 \text{ m} \div 4) \times 3$
 $200 \text{ m} \times 3$

600 m

A

Find 10% of:

- | | |
|-------|--------|
| 1 30 | 5 150 |
| 2 80 | 6 200 |
| 3 50 | 7 420 |
| 4 100 | 8 500. |

Find 10% of:

- | | |
|----------|-----------|
| 9 40p | 13 £2.00 |
| 10 70p | 14 £4.60 |
| 11 £1.00 | 15 £12.00 |
| 12 £1.80 | 16 90p. |

Find 10% of:

- | | |
|-----------|----------|
| 17 20 cm | 21 1 m |
| 18 60 cm | 22 5 m |
| 19 400 g | 23 1 kg |
| 20 1000 g | 24 3 kg. |

25 There are 240 trees in a wood. 10% are oak trees. How many oak trees are there in the wood?

26 A fridge costs £450. In a sale there is 10% off. What is the new price?

B

For each of the following amounts find:

a) 10% b) 5% c) 20%.

- | | |
|----------|--------|
| 1 £2.00 | 3 3 kg |
| 2 500 ml | 4 15 m |

Find:

- 5 20% of 300
 6 70% of 250
 7 30% of 600
 8 60% of 25
 9 5% of 500 g
 10 5% of 2 kg
 11 5% of 380 ml
 12 5% of 8 litres

13 Toyah makes 5 litres of soup. 70% is used. How much is left?

14 There are 140 rooms in a hotel. 20% have been decorated since the hotel opened. How many have not been redecorated?

15 A tracksuit costs £25. The price goes up by 5%. What is the new price?

C

Find:

- 1 1% of £240
 2 4% of £8
 3 25% of 34 cm
 4 15% of 2 m
 5 11% of 500 g
 6 15% of 4 kg
 7 99% of 10 litres
 8 95% of 600 ml

Copy and complete:

- 9 10% of = 25
 10 20% of = 7
 11 90% of = 18
 12 25% of = 13
 13 1% of = 1.4
 14 2% of = 0.8
 15 5% of = 12
 16 75% of = 360

17 Latrice has £15 000 in a savings account at the start of the year. How much will she have in her account at the end of the year if the annual interest rate is:
 a) 1% b) 5% c) 7.5%?

TARGET To multiply and divide decimals by 10 and 100.

Multiplying – digits move left

Dividing – digits move right

\times/\div by 10 – digits move 1 place

\times/\div by 100 – digits move 2 places

Examples

$$3.286 \times 10 = 32.86$$

$$1.63 \times 100 = 163$$

$$49.2 \div 10 = 4.92$$

$$7.8 \div 100 = 0.078$$

A

Multiply by 10.

- | | |
|--------|----------|
| 1 0.4 | 7 0.12 |
| 2 3.9 | 8 35.8 |
| 3 21.6 | 9 4.35 |
| 4 0.2 | 10 0.6 |
| 5 10.7 | 11 17.41 |
| 6 9.5 | 12 40.9 |

Divide by 10.

- | | |
|--------|---------|
| 13 92 | 19 71.9 |
| 14 7 | 20 54 |
| 15 181 | 21 386 |
| 16 25 | 22 0.2 |
| 17 203 | 23 3.5 |
| 18 8 | 24 507 |

Copy and complete.

- 25 $\times 10 = 13$
- 26 $\times 10 = 2.9$
- 27 $\times 10 = 51.4$
- 28 $\times 10 = 7$
- 29 $\div 10 = 0.33$
- 30 $\div 10 = 8.6$
- 31 $\div 10 = 0.2$
- 32 $\div 10 = 1.05$

B

Multiply by 100.

- | | |
|--------|-----------|
| 1 0.9 | 7 4.76 |
| 2 5.38 | 8 9.032 |
| 3 71.6 | 9 0.5 |
| 4 0.44 | 10 10.891 |
| 5 2.1 | 11 23.07 |
| 6 0.05 | 12 0.255 |

Divide by 100.

- | | |
|---------|---------|
| 13 37 | 19 0.6 |
| 14 2 | 20 3098 |
| 15 180 | 21 20.7 |
| 16 6204 | 22 509 |
| 17 853 | 23 1.4 |
| 18 1710 | 24 1002 |

Copy and complete.

- 25 0.62 m = cm
- 26 0.7 mm = cm
- 27 6p = £
- 28 40 cm = m
- 29 £1.38 = p
- 30 1.1 m = cm
- 31 11.6 cm = mm
- 32 209p = £

C

Multiply by 1000.

- | | |
|---------|----------|
| 1 0.06 | 7 10.5 |
| 2 0.309 | 8 6.7 |
| 3 2.8 | 9 0.14 |
| 4 1.43 | 10 0.558 |
| 5 0.071 | 11 2.06 |
| 6 0.02 | 12 0.009 |

Divide by 1000.

- | | |
|-----------|---------|
| 13 710 | 19 4007 |
| 14 5 | 20 936 |
| 15 4800 | 21 580 |
| 16 26 | 22 6 |
| 17 3940 | 23 11 |
| 18 82 500 | 24 300 |

Work out and write each answer as a decimal.

- 25 one tenth of a half
- 26 100 times larger than three quarters
- 27 one hundredth of 10
- 28 10 times larger than one and a quarter
- 29 one tenth of two and a tenth
- 30 100 times larger than one and a half

TARGET To multiply and divide decimals by 10, 100 and 1000.

Multiplying – digits move left
 Dividing – digits move right
 \times/\div by 10 – digits move 1 place
 \times/\div by 100 – digits move 2 places
 \times/\div by 1000 – digits move 3 places

Examples

$$\begin{aligned}
 1.327 \times 10 &= 13.27 \\
 1.327 \times 100 &= 132.7 \\
 1.327 \times 1000 &= 1327
 \end{aligned}$$

$$\begin{aligned}
 5038 \div 10 &= 503.8 \\
 5038 \div 100 &= 50.38 \\
 5038 \div 1000 &= 5.038
 \end{aligned}$$

A

Multiply by 10.

- | | |
|--------|---------|
| 1 0.3 | 7 2.07 |
| 2 1.8 | 8 1.35 |
| 3 0.64 | 9 6.9 |
| 4 3.17 | 10 0.81 |
| 5 0.02 | 11 5.44 |
| 6 0.59 | 12 0.06 |

Divide by 10.

- | | |
|--------|--------|
| 13 5 | 19 39 |
| 14 1.2 | 20 0.1 |
| 15 28 | 21 6 |
| 16 0.7 | 22 2.5 |
| 17 15 | 23 74 |
| 18 4.3 | 24 0.8 |

Copy and complete.

- 25 $\square \times 10 = 0.8$
- 26 $\square \times 10 = 75$
- 27 $\square \times 10 = 2.3$
- 28 $\square \times 10 = 10.6$
- 29 $\square \div 10 = 4.7$
- 30 $\square \div 10 = 0.22$
- 31 $\square \div 10 = 0.9$
- 32 $\square \div 10 = 3.05$

B

Multiply by:

- | 100 | 1000 |
|---------|----------|
| 1 3.15 | 7 0.3 |
| 2 0.6 | 8 0.065 |
| 3 1.024 | 9 0.01 |
| 4 0.09 | 10 2.5 |
| 5 5.8 | 11 0.002 |
| 6 0.107 | 12 4.28 |

Divide by:

- | 100 | 1000 |
|---------|-----------|
| 13 45 | 19 290 |
| 14 1.2 | 20 54 |
| 15 370 | 21 6100 |
| 16 9 | 22 327 |
| 17 0.6 | 23 18 700 |
| 18 1485 | 24 3 |

Copy and complete.

- 25 $\square \times 10 = 0.06$
- 26 $\square \div 100 = 0.9$
- 27 $\square \times 100 = 45$
- 28 $\square \div 1000 = 0.247$
- 29 $0.02 \times \square = 20$
- 30 $83 \div \square = 8.3$
- 31 $0.05 \times \square = 5$
- 32 $400 \div \square = 0.4$

C

Copy and complete.

- 1 $\square \times 10 = 0.8$
- 2 $\square \div 100 = 0.4$
- 3 $\square \times 1000 = 163$
- 4 $\square \div 10 = 0.207$
- 5 $\square \times 100 = 0.9$
- 6 $\square \div 1000 = 0.055$
- 7 $0.18 \times \square = 18$
- 8 $0.07 \div \square = 0.007$
- 9 $0.06 \times \square = 60$
- 10 $1.2 \div \square = 0.012$
- 11 $0.3 \times \square = 3$
- 12 $290 \div \square = 0.29$

Work out and write each answer as a decimal.

- 13 one half of a tenth
- 14 one tenth of a tenth
- 15 one half of a hundredth

What number is:

- 16 10 times larger than three quarters of 2
- 17 100 times larger than a half of a quarter
- 18 1000 times larger than a twentieth?

TARGET To solve word problems involving decimal notation of measures.

Example

A watering can has a capacity of 3.75 litres.

It is filled and emptied six times.

How much water has been used?

$$\begin{array}{r} 3.75 \\ \times \quad 6 \\ \hline 22.50 \\ \hline \end{array}$$

Answer 22.5 litres has been used.



A

- 1 A greengrocer has 83.5 kg of potatoes. 56.2 kg are sold. How much is left?
- 2 On Monday Joyce used 78.9 litres of water. On Tuesday she used 13.6 litres more than she had the day before. How much water did she use on Tuesday?
- 3 Jack is driving 63 km. He is halfway. How far has he driven?
- 4 One coin weighs 7.4 g. What do six coins weigh?
- 5 David's fish tank holds 52.8 litres of water. He drains off 10 per cent. How much is left?
- 6 The annual rainfall in the Scottish Highlands was 3.12 m. In the next year it is 69 cm less. What was the rainfall in the second year?
- 7 Lydia runs 6.4 km every day for a week. How far does she run altogether?

B

- 1 Each roll of wallpaper is 6.25 m. Maxine buys eight rolls. What is the total length of her wallpaper?
- 2 Robert earns £2779 in four weeks. What does he earn each week?
- 3 A baby weighs 7.8 kg. The next time she is weighed her weight has increased by 5 per cent. What is the baby's new weight?
- 4 The planned length of a tunnel is 2.47 km. 875 m still needs to be dug. How long is the tunnel which has been dug?
- 5 Five identical bricks weigh 6.3 kg. What does one brick weigh?
- 6 One pot of soup holds 0.58 litres. What do nine pots hold?
- 7 A large bag of peas weighs 1.35 kg. A small bag weighs 685 g. How much heavier is the large bag?

C

- 1 Seven refrigerators are loaded onto a lorry. Each weighs 78.42 kg. What is the total weight of the load?
- 2 A saucepan holds 2.37 litres of water. 568 ml is poured away. How much water is left?
- 3 At 8 am the shadow of a tree is 50.4 m long. By midday it is a quarter as long. How long is the shadow at midday?
- 4 A dishwasher uses 238.5 litres of water in six washes. How much does it use in each wash?
- 5 A sheep weighs 26.32 kg before shearing. 1465 g of wool is removed. How much does the sheep weigh now?
- 6 Lloyd throws the javelin 67.5 metres. The winning throw is 6 per cent longer. What is the winning throw?

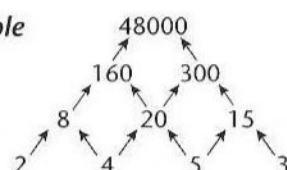


TARGET To solve number puzzles involving multiplication and division.

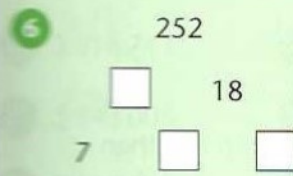
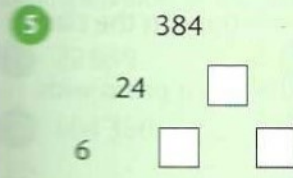
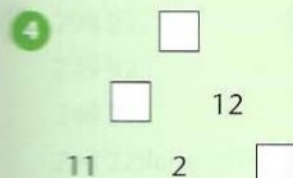
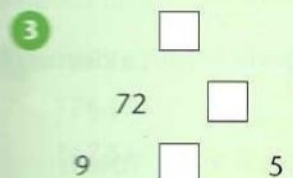
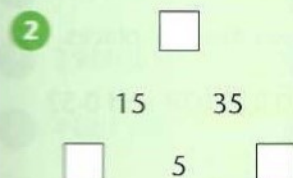
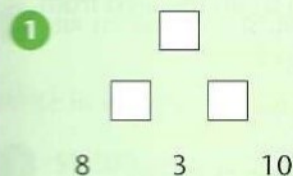
In a multiplication pyramid pairs of numbers are multiplied together to make the number above them.

Use jottings to help complete the multiplication pyramids.

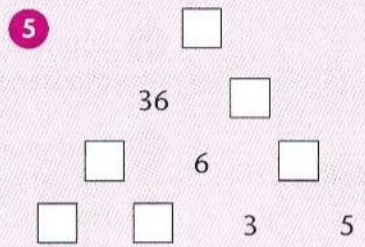
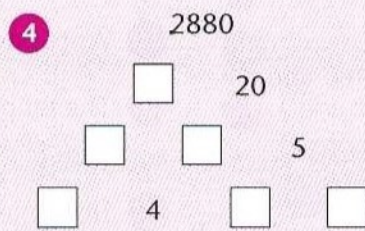
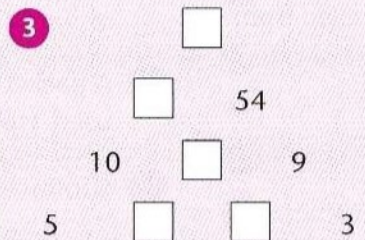
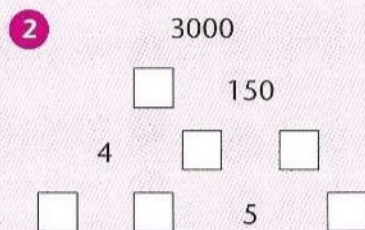
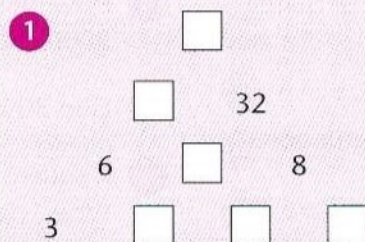
Example



A



B



C

Arrange the numbers in brackets to form the bottom layer of a multiplication pyramid with the given top layer total.

1 (1, 2, 3, 4) 96

2 (2, 2, 4, 5) 8000

3 (1, 2, 3, 7) 168

4 (1, 2, 5, 6) 6000

Using single-digit prime numbers only make a four layer pyramid with a top layer of:

5 960

7 21 000

6 6000

8 864

9 Millie, Mollie and Maisie each used the same three numbers to form the bottom layer of a 3 layer multiplication pyramid. They each had a different top layer total. Millie's was 140, Mollie's was 350. What was Maisie's total?