

## MULTIPLYING AND DIVIDING DECIMALS BY WHOLE NUMBERS

To **multiply** a decimal by a whole number, keep the decimal point in line. Multiply the decimal part, then the whole number part. Remember to carry over where you need to.

**Example**  $3.5 \times 7$

$$\begin{array}{r} 3.5 \\ \times 7 \\ \hline 24.5 \\ 3 \end{array}$$

**Example**  $4.52 \times 6$

$$\begin{array}{r} 4.52 \\ \times 6 \\ \hline 27.12 \\ 3 \quad 1 \end{array}$$

To **divide** a decimal by a whole number, keep the decimal point in line. Remember to work out the remainder and bring down where you need to.

**Example**  $17.2 \div 4$

$$\begin{array}{r} \underline{4.3} \\ 4) 17.2 \\ 16 \downarrow \\ \hline 12 \\ \underline{12} \\ 0 \end{array}$$

**Example**  $23.84 \div 8$

$$\begin{array}{r} \underline{2.98} \\ 8) 23.84 \\ 16 \downarrow \downarrow \\ \hline 78 \downarrow \\ 72 \downarrow \\ \hline \downarrow \\ 64 \\ \underline{64} \\ 0 \end{array}$$

**Try these**

$1.24 \times 3 =$

$2 \times 8.9 =$

$84.5 \div 2 =$

$24.96 \div 8 =$

## MULTIPLYING A DECIMAL BY A DECIMAL

1. Ignore the decimal points and use your favourite method to multiply the figures.
2. Count the total number of decimal places in **both** numbers and put this total number of decimal places back into your answer

**Example**  $6.24 \times 5.3$   
 $624 \times 53 = 33072$  Put back 3 decimal places (two in 6.24 and one in 5.3) which gives you 33.072

### Try these

$1.8 \times 4.2$

$40.6 \times 0.8$

$1.2 \times 3.4$

$4.25 \times 3.1$

## TO DIVIDE A DECIMAL BY A DECIMAL

1. Change the number you are dividing by into a whole number by multiplying by 10, 100 or 1000
2. Multiply the number you are dividing by the same multiple of 10
3. Work out your division using the same method you used for dividing a decimal by a whole number

**Example**  $3.6 \div 1.8$  becomes  $36 \div 18 = 2$

**Example**  $7.4 \div 0.05$  becomes  $740 \div 5 = 148$

### Try these

$0.8 \div 0.2$

$0.4 \div 0.02$

$13.25 \div 0.5$

$2.5 \div 0.04$

## NOW TRY THESE REAL LIFE PUZZLES



1. Your salon uses 10 bottles of shampoo per week. Each bottle contains 1.5 litres. How many litres are used in a week?
2. You have been asked to place the order for next week but the new supplier only has 0.75 litre bottles. How many bottles do you need to order?



3. You and 3 friends drink 6 bottles of champagne between you. Each bottle contains 0.75 litres. How many litres did you drink altogether?

4. How many bottles did each of you drink?



5. You are on holiday in Paris and have your hair cut there. It costs 60 euros. How much would that be in £?

6. You bought a skirt for 24 euros in the hypermarket. How much would that be in £?

1.5 euros = £1

7. Your salon manager has asked you to fill in the costs on this order form and give a total.

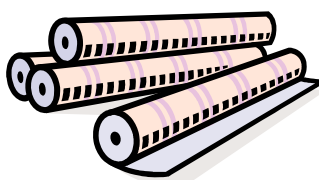
Code	Item	Price each £	Quantity	Total £
SC4	Silk conditioner large	10.25	5	
IT6	Super intense treatment	5.69	25	
CC2	Colorado gold blonde 2	2.95	15	
HTP1	Hi-tech peroxide	2.34	20	
HTSS	Hi-tech shine serum	3.75	6	
			TOTAL	



8. Three friends share a taxi and pay an equal share. The total fare was £25.50. How much did each pay?

9. A trainee earns £5.95 per hour. How much does she earn in 20 hours?

10. A roll of ribbon is 20 metres long. How many pieces, 0.4 metres long, can you cut from the roll?



11. It takes 25 lengths of wallpaper, 3.5m long to paper a room. The decorator adds an extra 0.25 per length to allow for matching the pattern. How many metres of paper does he need in total?

12. If each roll of paper is 10.1m long, how many rolls does he need?

## Answers

$1.24 \times 3 = 3.72$

$2 \times 8.9 = 17.8$

$84.5 \div 2 = 42.25$

$24.96 \div 8 = 3.12$

$0.8 \div 0.2 = 4$

$0.4 \div 0.02 = 20$

$13.25 \div 0.5 = 26.5$

$2.5 \div 0.04 = 62.5$

1. Your salon uses 10 bottles of shampoo per week. Each bottle contains 1.5 litres. How many litres are used in a week?  $10 \times 1.5 = 15$  litres

2. You have been asked to place the order for next week but the new supplier only has 0.75 litre bottles. How many bottles do you need to order?

$15 \div 0.75 = 20$  bottles

3. You and 3 friends drink 6 bottles of champagne between you. Each bottle contains 0.75 litres. How many litres did you drink altogether?

$6 \times 0.75 = 4.5$  litres

4. How many bottles did each of you drink?

$6 \div 4 = 1.5$  bottles

5. You are on holiday in Paris and have your hair cut there.

It costs 60 euros. How much would that be in £?

$60 \div 1.5 = \text{£}40$

6. You bought a skirt for 24 euros in the hypermarket. 1.5 euros = £1

How much would that be in £?  $24 \div 1.5 = \text{£}16$

7. Your salon manager has asked you to fill in the costs on this order form and give a total

Code	Item	Price each £	Quantity	Total £
SC4	Silk conditioner large	10.25	5	51.25
IT6	Super intense treatment	5.69	25	142.25
CC2	Colorado gold blonde 2	2.95	15	44.25
HTP1	Hi-tech peroxide	2.34	20	46.80
HTSS	Hi-tech shine serum	3.75	6	22.50
			TOTAL	307.05

8. Three friends share a taxi and pay an equal share. The total fare was £25.50. How much did each pay?  $25.5 \div 3 = 8.50$

9. A trainee earns £5.95 per hour. How much does she earn in 20 hours?

$5.96 \times 20 = \text{£}119$

10. A roll of ribbon is 20 metres long. How many pieces, 0.4 metres long, can you cut from the roll?  $20 \div 0.4 = 200 \div 4 = 50$  pieces

11. It takes 25 lengths of wallpaper, 3.5m long to paper a room. The decorator adds an extra 0.25 per length to allow for matching the pattern. How many metres of paper does he need in total?  $3.5 + 0.25 = 3.75 \times 25 = 93.75$  m

12. If each roll of paper is 10.1m long, how many rolls does he need?

$93.75 \div 10.1 = 9.282 = 10$  rolls