

# Maths Spring 2

# Year 8

# Blended Learning Booklet

Name:

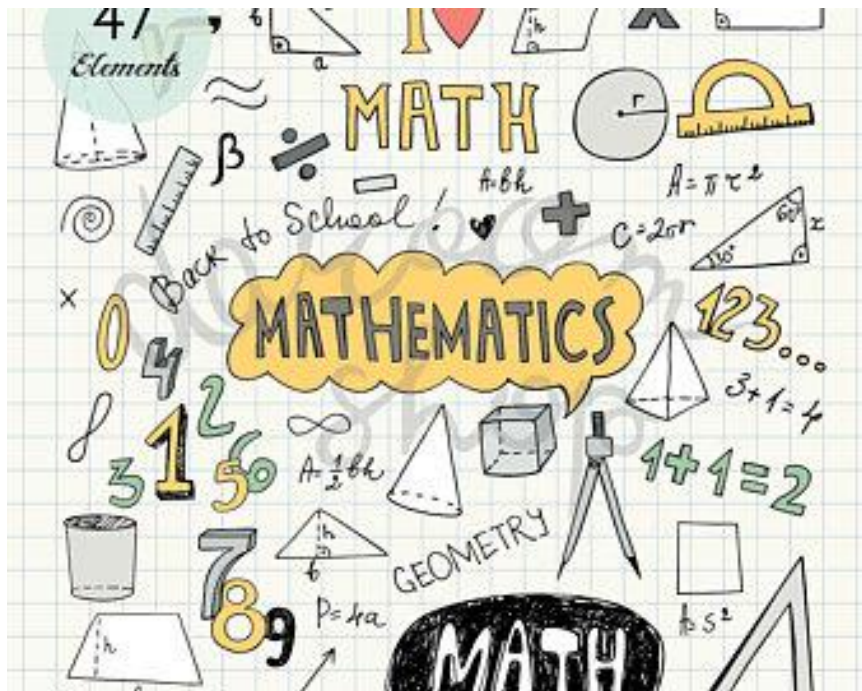
## Form:

*Each week covers topics you would complete in your 3 Maths lessons that week. Write out the title and LI and then complete the tasks.*

*All video links are online using the ClassCharts link.*

*The Knowledge Organiser on page 4 has further practice questions and page numbers linking to your pocket revision guides for all the key information and examples to help you with this unit.*

*Upload all work onto ClassCharts for feedback.*



## Contents

Page 3: Big Picture - Year 8 Overview

Page 4: Knowledge Organiser

Page 5-10: Week 1 – Fractions, Decimals and Percentages

Page 11-16: Week 2 – Increase and Decrease amounts using percentages

Page 17-22: Week 3 – Finding the original value of an amount

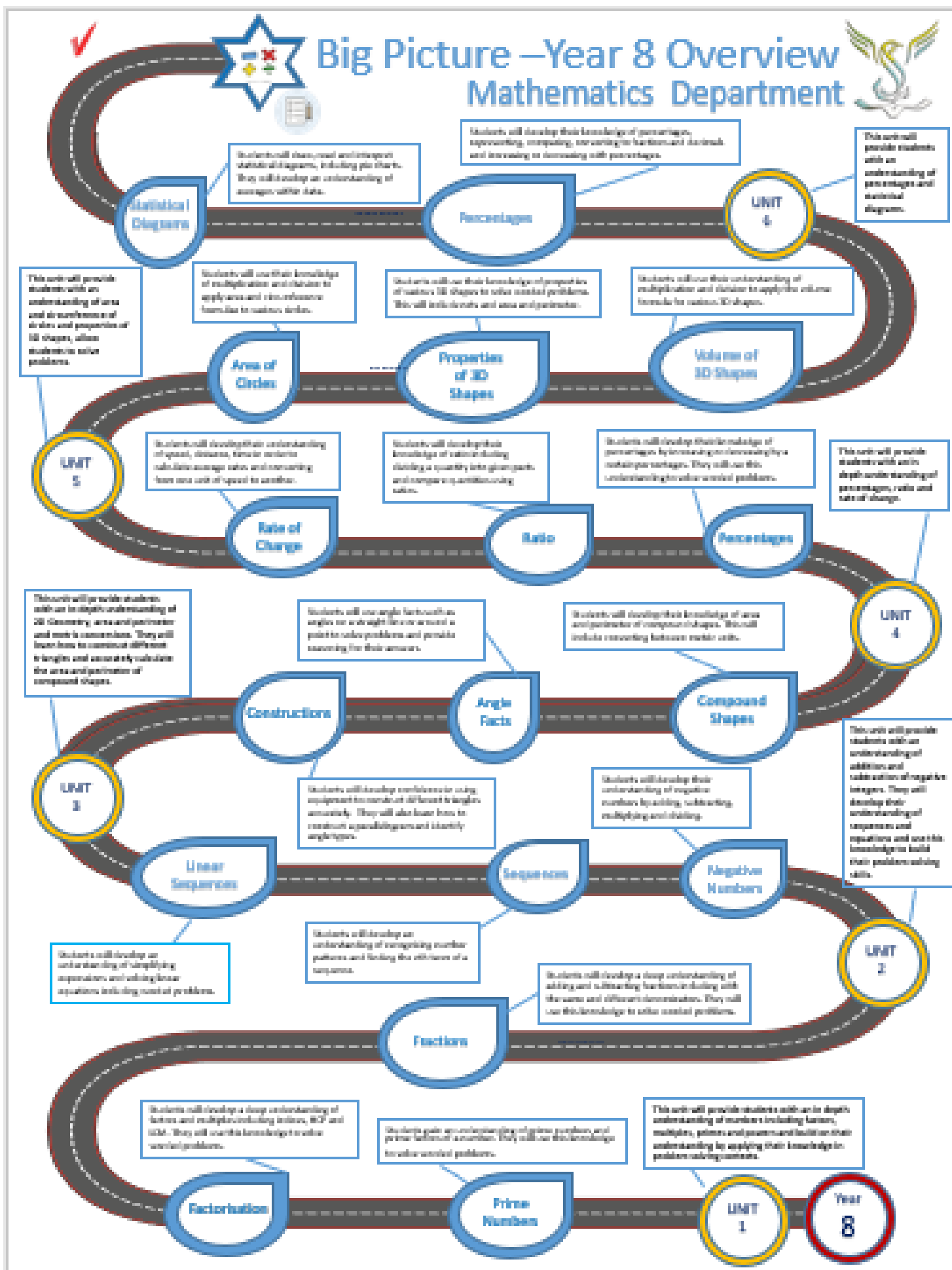
Page 23-28: Week 4 – Ratio

Page 29-34: Week 5 – Speed, Distance, Time

Page 35: Assessment Ladder



## Big Picture –Year 8 Overview Mathematics Department





1

Cost price = £40  
Selling price = £48  
Calculate the percentage profit

Cost price = £500  
Selling price = £495  
Calculate the percentage loss

Cost price = £220  
Selling price = £187  
Calculate the percentage loss

Cost price = £50  
Selling price = £125  
Calculate the percentage profit

4



Every 100 g of 'crust' bread contains 8 g of fibre.  
A loaf of bread weighs 600 g and has 20 equal slices.  
How much fibre is there in one slice?

10

Two letters have a total weight of 150 grams.



One letter weighs twice as much as the other.  
Write the weight of the heavier letter.

18

Find 30% of £450    Find 15% of £840    Reduce £480 by 20%

19

What fraction is exactly half-way between  $\frac{3}{5}$  and  $\frac{5}{7}$ ?

20

Office regulations say the gap between the desks should be 800 mm to allow for wheelchair users.  
Change 800 mm to metres.



Revision guide reference pages  
Pages 56, 57, 58 and 63

2

Sam invests £520 in a Super Saver savings account.



How much interest does Sam earn in 1 year?

6

$$2a + 3a + a$$

7

$$x + 2 = 10$$

8

$$4x = 12$$

$$-2a + 3a + a$$

$$x - 2 = 10$$

$$4x + 1 = 13$$

12

$$\frac{1}{4}$$

25%

$$\frac{1}{10}$$

$$2a - 3a + a$$

$$2 - x = 10$$

$$4x - 1 = 11$$

$$2a + 3b + a$$

$$2x = 10$$

$$1 - 4x = 13$$

$$2a + 3b - a + 2b$$

$$4x = 10$$

$$13 - 4x = 1$$

11

A car travels for 1½ hours at an average speed of 30 mph.  
How far does it travel?

13

Increase £12.50 by 18%

Decrease £17.50 by 2%

Increase £17 by 8%

Decrease £15.20 by 5%

Increase £12.80 by 5%

Decrease £15.50 by 14%

Increase £18 by 6.5%

Decrease £13.20 by 5%

Increase £13.80 by 10%

Decrease £14.20 by 5%

Mel invests £900 in a bank account. During the first year she earns 15% interest. How much will be in her account at the end of the year?

16

A TV priced £420 is reduced by 15% in a sale. What will be the sale price?

17

Calculate the original cost

Sold for £52.50 making a 5% profit.

Sold for £66.70 making a 15% profit

Sold for £112.24 making a 22% profit

Sold for £24.75 making a 45% loss

Sold for £18.75 making a 25% loss

3

Calculate the selling price if an item bought for £450 is sold making a 15% loss

Calculate the selling price if an item bought for £150 is sold making a 5% loss

Calculate the selling price if an item bought for £160 is sold making a 25% profit

Calculate the selling price if an item bought for £220 is sold making a 10% profit

9

The ratio of male to female members of a tennis club is 4 : 5. What fraction of the members of the club are female?

The ratio of girls to boys in a club is 1 : 3. What fraction of the members are boys?

The ratio of black pens to blue pens in a pencil case is 3 : 10. What fraction of the pens are blue?

## Week 1:

- **L1:** I can convert between fractions decimals and percentages

### Demonstration Videos:

<https://corbettmaths.com/2012/08/19/decimals-to-percentages/>

<https://corbettmaths.com/2013/03/29/fractions-to-percentages/>

<https://corbettmaths.com/2013/02/15/fractions-to-decimals/>

<https://corbettmaths.com/2013/04/24/key-fractions-decimals-and-percentages/>

### Tasks:

Question 1: Write these fractions as percentages

- (a)  $\frac{1}{2}$     (b)  $\frac{1}{4}$     (c)  $\frac{3}{4}$     (d)  $\frac{1}{5}$     (e)  $\frac{3}{5}$     (f)  $\frac{7}{10}$     (g)  $\frac{1}{3}$

Question 2: Write these fractions as decimals

- (a)  $\frac{1}{2}$     (b)  $\frac{1}{4}$     (c)  $\frac{3}{4}$     (d)  $\frac{1}{5}$     (e)  $\frac{1}{3}$     (f)  $\frac{1}{10}$     (g)  $\frac{2}{3}$

Question 3: Write these decimals as fractions

- (a) 0.1    (b) 0.6    (c) 0.5    (d) 0.75    (e) 0.8    (f) 0.2    (g) 0.25

Question 4: Write these decimals as percentages

- (a) 0.75    (b) 0.25    (c) 0.9    (d) 0.5    (e) 0.4    (f) 0.7    (g) 0.8

Question 5: Write these percentages as fractions

- (a) 50%    (b) 25%    (c) 75%    (d) 10%    (e) 70%    (f) 20%    (g) 60%

Question 6: Write these percentages as decimals

- (a) 75%    (b) 90%    (c) 50%    (d) 25%    (e) 30%    (f) 40%    (g) 90%

Question 7: Copy and complete this table

Fraction	Decimal	Percentage
$\frac{1}{2}$		
	0.8	
$\frac{2}{3}$		
		30%



1. Circle the odd one out.

a)	30%	$\frac{3}{100}$	0.3	$\frac{3}{10}$
b)	0.6	60%	$\frac{3}{5}$	$\frac{6}{100}$
c)	6%	$\frac{6}{100}$	0.6	0.06

2. Mary scored 84 out of 120 in a test.

a) Express this as a fraction.

b) Write this as a decimal

c) Write her score as a percentage?

3. Change each of these marks to a percentage.

a)  
Science:  $\frac{22}{25}$

Art:  $\frac{24}{30}$

History:  $\frac{54}{60}$

Maths:  $\frac{34}{40}$

b) Put these marks in descending order.

4. Write in order of size, lowest first:

a)  $\frac{2}{3}$ , 0.6,  $\frac{3}{4}$ , 55%.....

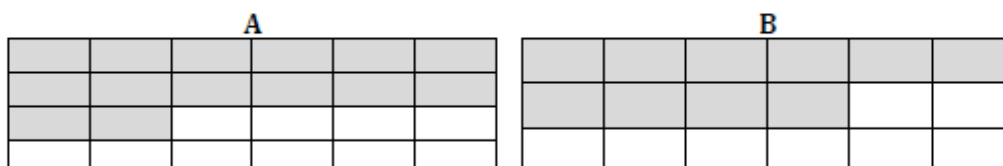
b) 42%,  $\frac{11}{25}$ , 0.43,  $\frac{9}{20}$ .....



c)  $\frac{21}{80}$ , 27%,  $\frac{57}{200}$ , 0.280.....



5. Which diagram has the greater percentage shaded? Give reasons for your answer.





**Week 1:**

- **L1:** I can express one quantity as a percentage of another

**Demonstration Videos:**

<https://corbettmaths.com/2012/08/21/expressing-one-quantity-as-a-percentage-of-another/>

**Tasks:****Question 1:**

- |   |   |
|---|---|
| (a) Write £5 as a percentage of £10         | (b) Write 5cm as a percentage of 20cm     |
| (c) Write 7 days as a percentage of 10 days | (d) Write 27 as a percentage of 50        |
| (e) Write 3g as a percentage of 20g         | (f) Write 4m as a percentage of 5m        |
| (g) Write 164 as a percentage of 200        | (h) Write 130ml as a percentage of 1000ml |

**Question 2:**

- |  |  |
|--|--|
| (a) Write 6 out of 8 marks as a percentage | (b) Write 10kg as a percentage of 40kg |
| (c) Write 22 as a percentage of 40         | (d) Write \$15 as a percentage of \$75 |
| (e) Write £21 as a percentage of £30       | (f) Write €18 as a percentage of €40   |
| (g) Write 20p as a percentage of £1        | (h) Write 60cm as a percentage of 2m   |

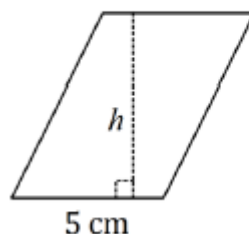
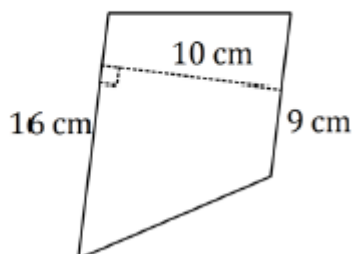
**Question 3:**

- |  |   |
|--|---|
| (a) Write 3 as a percentage of 8             | (b) Write 13 out of 200 as a percentage |
| (c) Write 7cm as a percentage of 40cm        | (d) Write \$5 as a percentage of \$16   |
| (e) Write 19 marks out of 32 as a percentage | (f) Write 20 out of 30 as a percentage  |

**Question 4: Give each answer to 1 decimal place**

- |  |  |
|--|--|
| (a) Write 8 as a percentage of 18                  | (b) Write £1000 as a percentage of £1200   |
| (c) Write 128 as a percentage of 153               | (d) Write 5 hours as a percentage of 1 day |
| (e) Write 394000 people as a percentage of 2490000 |  |

2. A bar of chocolate has 32 squares. Laura eats 12 squares.  
What percentage of the bar does she eat?
  
3. A new car costs £12 500. The car dealer gives a discount of £18 75.  
Work out the percentage discount.
  
4. I can buy a scooter for one cash payment of £227, or pay a deposit of 20% and then six equal monthly payments of £32.  
How much extra will I pay in the second option?
  
5. A lady buys a car for £2500 and sells it for £1800.  
Work out her percentage loss.
  
8. The area of the parallelogram is 30% of the area of the trapezium.  
Work out the missing height of the parallelogram.



Diagrams not  
drawn  
accurately



9. Nate earns £1750 each month.  
In one month he spent 20% of his salary on rent, £580 on food and £850 on other expenses.
  - a) How much did he overspend by?

- b) Express the amount he overspent as a percentage of his monthly salary, giving your answer correct to 1 decimal place.



## Week 1:

- **L1:** I can solve problems involving percentage change

### Demonstration Videos:

<https://corbettmaths.com/2012/08/21/expressing-one-quantity-as-a-percentage-of-another/>

### Tasks:

- Question 1: In January, a puppy weighed 4kg.  
Three months later, the same puppy weighed 5kg.  
What was the percentage increase in the puppy's weight?



- Question 2: The number of TVs sold increased from 50 to 60.  
Work out the percentage increase.



- Question 3: Peter's weight decreases from 80kg to 72kg  
Calculate the percentage decrease in Peter's weight.



- Question 4: A car is travelling at 40 kilometres per hour.  
The car increases its speed to 56 kilometres per hour.  
Calculate the percentage increase in the speed of the car.



- Question 5: Keira buys a coffee table for £120 and sells it for £204.  
Work out her percentage profit.



- Question 6: Daisy bought a car for £20,000.  
She sold the car for £15,000.  
Work out the percentage loss.



- Question 7: The population of an island in 2017 was 30,000.  
In 2018, the population was 31,500.  
Calculate the percentage increase.



- Question 8: Rebecca bought a dress for £80.  
She later sold it for £116.  
Find the percentage profit.



- Question 9: In a sale the price of a football shirt decreases from £50 to £37  
Work out the percentage decrease in price.



Name \_\_\_\_\_

## Calculating percentage profit or loss

90%	70%	75%	40%	200%
2%	5%	5%	55%	15%
50%	10%	25%	60%	80%
85%	35%	25%	30%	10%
20%	45%	65%	15%	150%

Cost price = £360 : Selling price = £144  
Percentage loss?

Cost price = £40 : Selling price = £44  
Percentage profit?

Cost price = £420 : Selling price = £210  
Percentage loss?

Cost price = £580 : Selling price = £319  
Percentage loss?

Cost price = £320 : Selling price = £48  
Percentage loss?

Cost price = £180 : Selling price = £243  
Percentage profit?

Cost price = £180 : Selling price = £252  
Percentage profit?

Cost price = £90 : Selling price = £63  
Percentage loss?

Cost price = £500 : Selling price = £510  
Percentage profit?

Cost price = £240 : Selling price = £108  
Percentage loss?

Cost price = £480 : Selling price = £120  
Percentage loss?

Cost price = £80 : Selling price = £8  
Percentage loss?

Cost price = £50 : Selling price = £40  
Percentage loss?

Cost price = £240 : Selling price = £72  
Percentage loss?

Cost price = £40 : Selling price = £100  
Percentage profit?

Cost price = £440 : Selling price = £154  
Percentage loss?

Cost price = £300 : Selling price = £315  
Percentage profit?

Cost price = £240 : Selling price = £276  
Percentage profit?

Cost price = £330 : Selling price = £66  
Percentage loss?

Cost price = £90 : Selling price = £270  
Percentage profit?






TOTAL

**Question 10:** The value of a painting rises from £24000 to £27120.  
Work out the percentage increase in the value of the painting.



**Question 11:** Christy buys a book for £17.40  
A year later she sells the book for £9.57  
Calculate the percentage decrease in the value of the book.



**Question 12:** In a sale the price of a sofa is reduced from £2500 to £2290  
What is the percentage decrease?



**Question 13:** The volume of juice in a bottle is increased from 500ml to 1.25 litres.  
Work out the percentage increase.



**Question 14:** The population of Bristol in 1921 was 367,831.  
In 2017, the population was 459,300.  
Calculate the percentage increase.  
Give your answer correct to one decimal place.



**Question 15:** A website had 80000 views in September.  
It had 122400 views in October.  
Work out the percentage increase in views.



**Question 2:** ABCD is a rectangle with length 40cm and width 10cm.  
The length of the rectangle is decreased by 40%.  
The width of the rectangle is decreased by 20%.  
Find the percentage decrease in the area of the rectangle.



## Week 2:

- **LI:** I can increase a quantity by a given percentage

### Demonstration Videos:

<https://corbettmaths.com/2012/08/21/increasing-or-decreasing-by-a-percentage/>

### Tasks:

## Easy

1. Increase 120 by 10%
2. Increase 40 by 15%
3. Increase 200 by 15%
4. Increase 60 by 25%
5. Increase 20 by 25%
6. Increase 100 by 10%
7. Increase 80 by 20%
8. Increase 140 by 20%

## Medium

1. Increase 240 by 16%
2. Increase 380 by 12%
3. Increase 300 by 4%
4. Increase 60 by 6%
5. Increase 240 by 16%
6. Increase 60 by 10%
7. Increase 240 by 8%
8. Increase 320 by 20%

## Hard

1. Increase 180 by 39%
2. Increase 500 by 22%
3. Increase 580 by 19%
4. Increase 20 by 6%
5. Increase 800 by 26%
6. Increase 200 by 27%
7. Increase 560 by 26%
8. Increase 420 by 5%

## Extreme

1. Increase 160 by 67%
2. Increase 1020 by 68%
3. Increase 1080 by 50%
4. Increase 240 by 27%
5. Increase 1400 by 26%
6. Increase 180 by 46%
7. Increase 240 by 59%
8. Increase 500 by 22%

START!				1
$837 + 73\%$ = 1447.0	$380 + 22\%$ = 463.6	$273 + 84\%$ = 503.3	$121 + 12\%$ = 135.5	$279 + 18\%$ = 329.2
$645 + 69\%$ = 1090.1	$868 + 24\%$ = 1076.3	$724 + 19\%$ = 861.6	$637 + 43\%$ = 910.9	$942 + 93\%$ = 1819.1
$236 + 48\%$ = 349.3	$730 + 31\%$ = 957.3	$521 + 56\%$ = 813.8	$803 + 82\%$ = 1461.5	$442 + 44\%$ = 636.5
$285 + 72\%$ = 490.2	$173 + 88\%$ = 326.2	$538 + 26\%$ = 677.9	$670 + 74\%$ = 1165.8	$906 + 89\%$ = 1712.3
$630 + 52\%$ = 958.6	$482 + 77\%$ = 854.1	$942 + 38\%$ = 1300.0	$741 + 62\%$ = 1300.4	$298 + 99\%$ = 594.0
FINISH!				

True or  
False Maze

A carton of orange juice contains 540ml.

A special offer carton contains an extra 35%.

How many millilitres of orange juice are in the special offer carton?

In 2000 the population of a country was 4,580,000

By 2015, the population had increased by 18%

Work out the population in 2015

A vintage car was bought for £9,400

Since then the value of the car has increased by 29%

Calculate the value of the car.

Oliver's salary is £18,000 and he is due to get an increase of 4%.

How much will this increase be?

## Week 2:

- **L1:** I can decrease a quantity by a given percentage

### Demonstration Videos:

<https://corbettmaths.com/2012/08/21/increasing-or-decreasing-by-a-percentage/>

### Tasks:

## Easy

1. Decrease 100 by 15%
2. Decrease 200 by 5%
3. Decrease 120 by 25%
4. Decrease 40 by 5%
5. Decrease 200 by 20%
6. Decrease 180 by 10%
7. Decrease 60 by 25%
8. Decrease 180 by 5%

## Medium


1. Decrease 340 by 3%
2. Decrease 120 by 6%
3. Decrease 120 by 7%
4. Decrease 340 by 19%
5. Decrease 340 by 9%
6. Decrease 40 by 10%
7. Decrease 300 by 17%
8. Decrease 80 by 12%

## Hard

1. Decrease 320 by 35%
2. Decrease 560 by 14%
3. Decrease 440 by 33%
4. Decrease 800 by 40%
5. Decrease 640 by 7%
6. Decrease 60 by 36%
7. Decrease 680 by 21%
8. Decrease 60 by 6%

## Extreme

1. Decrease 240 by 29%
2. Decrease 1220 by 62%
3. Decrease 1560 by 42%
4. Decrease 360 by 58%
5. Decrease 1340 by 25%
6. Decrease 180 by 9%
7. Decrease 280 by 37%
8. Decrease 80 by 63%



### START! (1 d.p.)

937 - 37% = 591.3	128 - 53% = 61.2	838 - 16% = 713.9	469 - 7% = 436.1	252 - 83% = 42.8
693 - 22% = 540.5	737 - 68% = 235.8	903 - 31% = 623.1	734 - 93% = 51.4	428 - 52% = 205.4
289 - 62% = 109.8	183 - 58% = 74.9	447 - 84% = 71.5	821 - 27% = 599.3	947 - 69% = 293.6
521 - 5% = 495.0	788 - 91% = 70.9	232 - 88% = 28.8	479 - 74% = 124.5	638 - 9% = 577.8
947 - 38% = 577.1	826 - 95% = 41.3	479 - 73% = 127.3	583 - 89% = 64.0	528 - 96% = 21.2

### FINISH!

True or  
False Maze

A new TV is priced at £320  
In a sale it is reduced by 45%

Calculate the sale price

Joanne sees this special offer in a shop.

Special Offer	
iPod	£189
Headphones	£25
Buy both items and receive a 4% discount	

Joanne buys both items.

How much does she pay?

Emily bought a car for £13 000  
In the first year the value of the car decreased by 23%

What was the value of the car after this decrease?

#### Special offer

A shop has this special offer.

Reduction of 10% when your bill is between £50 and £100 Reduction of 20% when your bill is more than £100
--

**Before** the reductions, Marie's bill is **£96** and Richard's bill is **£108**

**After** the reductions, who paid more?

You **must** show working to explain your answer.



## Week 2:

- **L1:** I can increase or decrease a quantity by a given percentage

### Demonstration Videos:

<https://corbettmaths.com/2012/08/21/increasing-or-decreasing-by-a-percentage/>

### Tasks:

#### Question 1


- |                                |                          |                          |
|--------------------------------|--------------------------|--------------------------|
| (a) Increase 20 by 50%         | (b) Increase 60p by 10%  | (c) Increase 12g by 25%  |
| (d) Increase 400 litres by 20% | (e) Increase 32ml by 75% | (f) Increase 70m by 40%  |
| (g) Increase 9000 by 5%        | (h) Increase £7 by 20%   | (i) Increase 9kg by 100% |


#### Question 2


- |                          |                              |                         |
|--------------------------|------------------------------|-------------------------|
| (a) Decrease 40 by 10%   | (b) Decrease 30 hours by 50% | (c) Decrease 8kg by 25% |
| (d) Decrease 55cm by 40% | (e) Decrease 64 by 75%       | (f) Decrease £3 by 10%  |
| (g) Decrease 1400 by 30% | (h) Decrease 500g by 3%      | (i) Decrease 6kg by 5%  |

#### Question 3

- |                           |                            |                         |
|---------------------------|----------------------------|-------------------------|
| (a) Increase 80ml by 9%   | (b) Increase 420g by 70%   | (c) Decrease 8 by 12%   |
| (d) Decrease £1250 by 38% | (e) Increase 6000km by 23% | (f) Decrease 48GB by 6% |
| (g) Increase 204 by 98%   | (h) Decrease 149mm by 91%  | (i) Increase 88 by 185% |

**Question 1:** Last year, there was 20 students in a class.  
 This year, there are 30% more students.  
 How many students are in the class this year?

**Question 2:** A TV normally costs £520.  
 In a sale, all prices are reduced by 10%  
 Calculate the sale price of the TV

**Question 3:** Over the past 10 years, the population of a town has increased by 25%  
 The population of the town 10 years ago was 18000  
 What is the population of the town now?

6. Match the calculations which are of equal value:

Increase £60 by 20%

Decrease £362.50 by 40%

Increase £110 by 25%

Decrease £115 by 20%

Increase £80 by 15%

Decrease £80 by 10%

Increase £150 by 45%

Decrease £275 by 50%

7. A shop has a sale, for each item in the sale work out the sale price.

Dress £68  
SALE  
20% off

Bed £350  
SALE  
40% off

Table £480  
SALE  
30% off

Name

£15.50	£13.49	£15.84	£13.86	£14.28
£12.92	£15.76	£11.22	£14.70	£14.44
£15.96	£14.11	£15.54	£14.10	£15.51
£14.57	£14.21	£15.64	£12.09	£12.54
£12.07	£12.44	£15.52	£13.33	£14.88

Decrease :

£15.50 by 6%	£16.80 by 5%	£15.20 by 15%	£16.60 by 15%
£16.80 by 15%	£16.50 by 16%	£13.20 by 5%	£13.20 by 15%
£15 by 6%	£17 by 8%	£18 by 12%	£14.20 by 15%
£16.50 by 6%	£15.20 by 5%	£16 by 3%	£18.50 by 16%
£16 by 7%	£15 by 2%	£15.50 by 14%	£14.20 by 5%






TOTAL

Name

£14.17	£12.60	£16.52	£15.75	£12.78
£14.72	£17.48	£15.64	£16.48	£15.76
£14.49	£15.96	£16.43	£14.75	£14.07
£17.12	£16.74	£13.44	£16.96	£17.22
£16.05	£13.25	£14.00	£14.50	£15.18

Increase :

£16 by 3%	£15.50 by 8%	£15.20 by 15%	£16.40 by 5%
£12.50 by 12%	£15 by 7%	£12.50 by 16%	£12 by 6.5%
£12.50 by 18%	£12.80 by 5%	£15 by 5%	£13.80 by 10%
£13.60 by 15%	£12 by 5%	£13.40 by 5%	£16 by 6%
£12.50 by 6%	£12.80 by 15%	£15.20 by 5%	£13.80 by 5%






TOTAL



## Week 3:

- **L1:** I can solve problems involving percentages and reverse percentages

Demonstration Videos: <https://corbettmaths.com/2013/02/15/reverse-percentages/>

### Tasks:

**Concept corner**

Jay receives a 25% pay rise.  
His new wage is £175 per week.  
What was Jay's wage before his pay rise?

Each equal part:  $175 \div 5 = 35$   
Original wage:  $35 \times 4 = £140$

$175 \div 1.25 = £140$

Compare the different calculation strategies. What do you notice?

-

1. A shop sells T-shirts with a 20% discount.  
Jan buys a T-shirt and pays £10.  
How much does the T-shirt normally cost?

2. A coat is on sale at £55.25, which is 85% of its original price.  
What was its original price?

3. Larry gets a 5% wage rise.  
His new wage is £252 per week.  
What was Larry's wage before his wage rise?

4. If 10% is deducted from a restaurant bill, £40.95 remains to be paid.  
How much is the original bill?

Question 10: Lucy has 68 books.



This number of books is 70% more than the number of books she had last year.  
How many books did Lucy have last year?

Question 11: Henry invested money into a bank account.



Each year the money in the account earns 3% interest.  
After one year, the total amount of money in the account was £169.95  
How much did Henry invest?

Question 12: In a sale, the price of lawnmowers are decreased by 16%



Jude buys a lawnmower in the sale for £369.60  
How much was the lawnmower before the sale?

Question 13: Evie is given a 22% pay rise.



Her new salary is £21960  
What was Evie's salary before the pay rise?

Question 14: A limited edition bag of sugar contains 35% more than a standard bag.



The limited edition bag contains 702g of sugar.  
How much sugar is in the standard bag?

Apply

Question 1: In a sale, a shop reduces all its prices by 10%.



On the last day of the sale, the shop reduces the sale prices by 20%

On the last day of the sale, a mobile phone costs £432

How much was the mobile phone before the sale?

Name

Calculate the original cost of

£40.00	£47.50	£60.00	£66.00	£32.00
£27.00	£65.80	£12.50	£28.50	£64.00
£54.20	£58.00	£35.00	£25.50	£62.00
£34.00	£55.00	£54.00	£30.00	£25.00
£34.40	£42.00	£45.00	£50.00	£28.00

Sold for £54.60: 9% loss	Sold for £26.40: 12% loss	Sold for £78.96: 20% profit	Sold for £49.50: 10% loss
Sold for £43: 25% profit	Sold for £66.70: 15% profit	Sold for £25.20: 40% loss	Sold for £59.40: 10% profit
Sold for £19.95: 30% loss	Sold for £19.60: 30% loss	Sold for £65.10: 5% profit	Sold for £43.65: 3% loss
Sold for £80: 25% profit	Sold for £40.25: 15% profit	Sold for £48: 4% loss	Sold for £38: 5% loss
Sold for £16.25: 30% profit	Sold for £32.52: 40% loss	Sold for £29.44: 8% loss	Sold for £18.75: 25% loss






TOTAL

## Week 3:

- **L1:** I can solve problems involving percentages and reverse percentages

Demonstration Videos: <https://corbettmaths.com/2013/02/15/reverse-percentages/>

### Tasks:

Question 1: 20% of all the children in a class are left handed.  
4 children are left handed.  
How many children are there in the class altogether?



Question 2: 30% of the members of a tennis club are pensioners.  
36 members are pensioners.



- How many members are there in total?
- How many members are not pensioners?

Question 3: A group of people sit their driving theory test and 24 people passed.  
80% of the people passed the driving theory test.  
How many people sat the test altogether?



Question 4: An energy bar contains 2.1g of protein.  
6% of the bar is protein.  
What is the total mass of the bar?



Question 5: Swansea is a city in Wales.  
The population of Swansea is 240,000  
This population is 7.5% of the total population of Wales.  
What is the total population of Wales?



Question 6: Heather invested money into a savers bank account.  
Each year the money in the account earns 10% interest.  
After one year, the total amount of money in the account was £2200  
How much did Heather invest?



Question 7: A chair is on sale at a price of £20.80  
This is a 20% reduction of the normal price.  
What was the price of the chair before the reduction?



Question 8: The population of an island has decreased by 40% over 50 years.  
The population in 2018 was 360  
What was the population in 1968?



Question 9: Sinead buys a watch.  
20% VAT is added to the price of the watch.  
Sinead then has to pay a total of £60  
What is the price of the watch with no VAT added?







## Answer GRID











Find the old price & cross it off.  
Total the remaining 5.

RED	Tax: 20% New Price: \$600	Discount: 30% New Price: \$620	Tax: 30% New Price: \$390	Discount: 10% New Price: \$540	Tax: 50% New Price: \$330
	Discount: 20% New Price: \$540	Tax: 40% New Price: \$280	Discount: 60% New Price: \$180	Tax: 60% New Price: \$250	Discount: 70% New Price: \$80
AMBER	Discount: 15% New Price: \$455	Tax: 34% New Price: \$278	Discount: 62% New Price: \$176	Tax: 28% New Price: \$982	Discount: 7% New Price: \$277
GREEN	Tax: 12.5% New Price: \$27.50	Discount: 6.5% New Price: \$98.50	Tax: 3.25% New Price: \$34.25	Discount: 34.74% New Price: \$67.39	Tax: 16.78% New Price: \$145.64

33.17	675	570	156.25	266.67
500	24.44	62.54	207.46	459.02
297.85	463.16	200	885.71	103.26
120	450	105.35	535.29	600
300	124.71	220	767.19	410

Total:

For each card, decide whether the information in the grey box is **TRUE** or **FALSE**. If it is **FALSE**, correct it!

<b>A</b> 20% off! Now £48!  Was: £70	<b>B</b> 30% extra free! Now 442 ml!  Was: 340 ml	<b>C</b> 15% off! Now £34!  Was: £45	<b>D</b> 25% extra free! Now 650 g!  Was: 500 g
<b>E</b> Shelly invested money & gained 8% over the year. She ended up with £270 Shelly invested £240	<b>F</b> Only £56! (Includes 12% tax)  Pre-Tax: £52	<b>G</b>  33% bigger! Now 532 ml! Was: 400 ml	<b>H</b> Quarter off! Now £12,750!  Was: £17,000
<b>I</b> 5% discount! Now £61.75!  Was: £65	<b>J</b> Mike invested money & lost 23% over the year. He ended up with £346.50 Mike invested £400	<b>K</b> 35% extra free! Now 459 g!  Was: 340 g	<b>L</b> Only £516! (Includes 7.5% tax)  Pre-Tax: £450
<b>M</b> Sal invested some money & the amount increased by 10% every year for 3 years. She withdrew £2662 Sal invested £2047.	<b>N</b> Max invested money & gained 15% in the 1 <sup>st</sup> year. He then lost 20% in the 2 <sup>nd</sup> year. He ended up with £3680 Max invested £4000	<b>O</b> Over the last 2 years a tree grew 30% per year. The plant is now 1.352m tall. The tree was 70 cm tall.	<b>P</b> Trish invested money & lost 40% in the 1 <sup>st</sup> year. She then gained 8% in the 2 <sup>nd</sup> year. She ended up with £3564 Trish invested £5200

Del sells his goods for £54.60 making a 9% loss

How much did he pay for the good when he bought them?

Del sells his goods for £128.70 making a 17% profit.

How much did he pay for the good when he bought them?

Del sells his goods for £59.40 making a 10% profit.

How much did he pay for the good when he bought them?



## Week 3:

- **L1:** I can find the original quantity given a part of it and its percentage

Demonstration Videos: <https://corbettmaths.com/2013/02/15/reverse-percentages/>

### Tasks:

Question 2: In 2008, Evan bought a car.



In 2010, Evan sold the car to Grace.  
Evan made a loss of 25%

In 2018, Grace sold the car for £15225  
Grace made a profit of 45%

Work out how much Evan bought the car for in 2008.

Question 3: There are 1500 people at an ice hockey match.



The announcer says that this is exactly 30% more people than the previous match.

Explain why the announcer is wrong.

Question 4: Gerard and Martin were both given a pay rise.



Gerard was given a 25% pay rise and Martin a 5% pay rise.  
The ratio of Gerard's salary to Martin's salary is now 12:7

Martin is now paid £21000

Work out Gerard's pay before the pay rise.

Question 5: Michael bought a hat and a coat.



The hat cost £10

He sold both items for a total of £90

Michael made 200% profit on the hat and 80% profit on the total cost.

Work out the percentage profit on the cost of the coat.

Question 6: Leonie bought a hat and a coat.



The hat cost £6

She sold both items for a total of £45

Leonie made 300% profit on the hat and 125% profit on the total cost.

Work out her percentage profit on the cost of the coat.

Question 7: Trevor is a car salesman.



He bought a car for £5000

Currently he is holding a sale with 35% off the price of all cars.

Trevor wants to sell the car so that he makes a 10% profit on the price he paid.

How much should Trevor advertise the car for?

5. I bought a bicycle in a sale and saved £49. The label said that it was a '20% reduction'. What was the original price of the bicycle?



6. A football team plays one game each month.  
12 500 people attended the game in June.  
This was an increase of 25% on the previous month.  
How many people attended the football match in May?



7. Neil sells his bike to Alex.  
Alex sells it to John for £194.40.  
Both Neil and Alex makes a 10% loss.  
How much did Neil pay for the bike?



8. Dan sells his Smartphone to Katy and makes a 15% profit.  
Katy then sells the Smartphone to Ben for £195.50.  
Katy makes a 15% loss.  
How much did Dan pay for the Smart phone?  
Explain why it's not £195.50.

9. Circle the correct working out for each of the following:

- a) Jenny earns £88 a day. She has been told that she will receive a 15% pay rise.  
How much will she earn now?

$88 \times 0.15$

$88 \div 0.85$

$88 \times 1.15$

$88 \times 0.85$

- b) Clive earns £270 each week. He donates 12% of his wages to charity. How much money does Clive donate to charity each month?

$270 \times 1.12$

$270 \div 0.88$

$270 \times 0.12$

$270 \times 0.88$

- c) A coat costs £90 in a shop. The shop has a sale and reduces the price of the coat by 10%. How much is the coat in the sale?

$90 \times 0.1$

$90 \times 0.9$

$90 \div 1.1$

$90 \div 0.1$

- d) After a 20% increase, Ian earns £72 a day. What was his original wage?

$72 \times 0.2$

$72 \div 0.8$

$72 \div 1.2$

$72 \times 1.2$

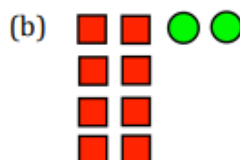
## Week 4:

- **LI:** I can write equivalent ratios

Demonstration Videos: <https://classroom.thenationalacademy/lessons/equivalent-ratios-71k32t>

### Tasks:

**Question 1:** For each of the following, write down the ratio of red squares to green circles. Give your ratios in their simplest forms.



**Question 2:** Simplify the following ratios

(a) 4 : 6

(b) 14 : 8

(c) 15 : 10

(d) 6 : 15

(e) 30 : 10

(f) 12 : 16

(g) 6 : 18

(h) 45 : 10

(i) 12 : 28

(j) 24 : 36

(k) 25 : 60

(l) 27 : 63

(m) 48 : 60

(n) 120 : 260

(o) 8000 : 75

(p) 33 : 121





(q) 2.5 : 4.5

(r) 1.5 : 20

(s) 6 : 1.2

(t) 2.25 : 4.95

**Match the equivalent ratios:**

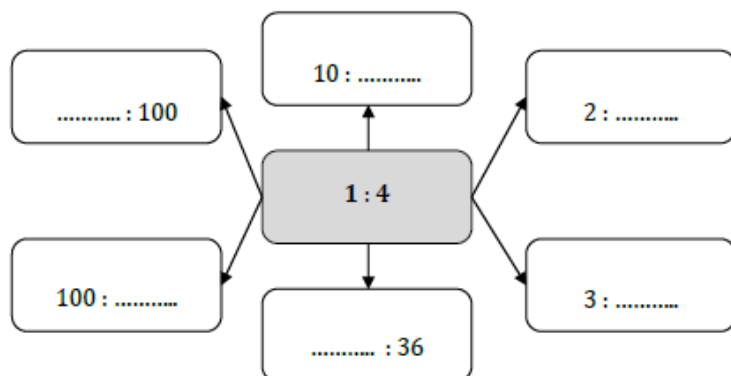
<div>1 : 3</div>	<div></div>	<div>9 : 6</div>
<div>3 : 3</div>	<div></div>	<div>3 : 9</div>
<div>3 : 2</div>	<div></div>	<div>9 : 12</div>
<div>3 : 4</div>	<div></div>	<div>6 : 6</div>

Arrows indicate matches: 1:3 matches 3:9; 3:4 matches 9:12.

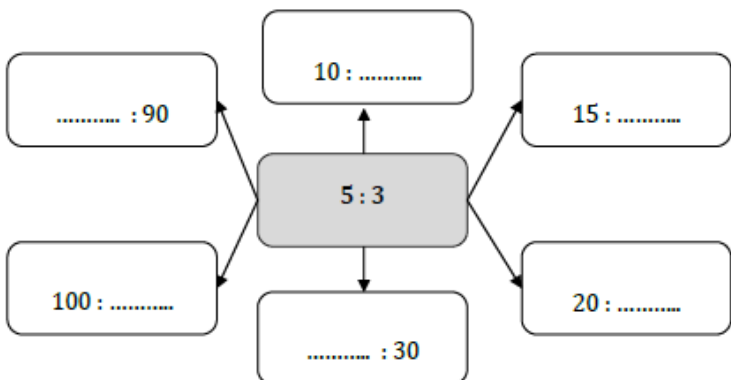


Fill in the blanks.

a)



b)



Odd one out?

Circle the ratio which is **not** equivalent to the others.

a) 15 : 10, 5 : 2, 30 : 20, 3 : 2, 9 : 6

b) 9 : 15, 3 : 5, 6 : 10, 3 : 4, 18 : 30

c) 7 : 2, 14 : 4, 7a : 2a, 28 : 7, 21 : 6

Question 1: Daisy mixes 50 ml of orange juice with 200 ml of water.  
Write down the ratio of orange juice to water.  
Give your answer in its simplest form.

Question 2: At a football match, there are 3000 men and 1800 women.  
Write down the ratio of male fans to female fans.  
Give your answer in its simplest form.



Question 3: Aidan, Bill and Cara share sweets in the ratio of their ages.  
Aidan is 12 years old.  
Bill is 9 years old.  
Cara is 3 years old.  
Write down the ratio of their ages.  
Give your answer in its simplest form.



## Week 4:

- **L1:** I can divide a quantity into a given ratio

**Demonstration Videos:** <https://corbettmaths.com/2013/03/03/ratio-sharing-the-total/>

### Tasks:

#### Question 1:

- |                                 |                                      |
|---------------------------------|--------------------------------------|
| (a) Share £20 in the ratio 2:3  | (b) Share 15cm in the ratio 1:2      |
| (c) Divide £24 in the ratio 1:3 | (d) Share 35 sweets in the ratio 4:3 |
| (e) Divide 55g in the ratio 3:2 | (f) Divide 54kg in the ratio 1:5     |
| (g) Share £210 in the ratio 2:5 | (h) Share 120 hours in the ratio 5:7 |
| (i) Share 350m in the ratio 3:7 | (j) Divide 360° in the ratio 1:4     |

#### Question 2:

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| (a) Share £104 in the ratio 3:5   | (b) Divide 161 miles in the ratio 6:1 |
| (c) Divide 315ml in the ratio 2:7 | (d) Share \$650 in the ratio 4:9      |
| (e) Share £800 in the ratio 11:14 | (f) Share 1200kg in the ratio 3:37    |
| (g) Divide €510 in the ratio 13:2 | (h) Share 1116mm in the ratio 1:8     |

#### Question 3:

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| (a) Share £40 in the ratio 1:3:4     | (b) Divide 63ml in the ratio 2:3:4   |
| (c) Share 88p in the ratio 2:4:5     | (d) Share 180° in the ratio 2:2:5    |
| (e) Divide \$165 in the ratio 1:2:12 | (f) Share 720cm in the ratio 3:4:2:9 |

Name

£150, £120	£9, £13.50	£20, £30	£30, £50	£24, £18
£39, £65	£54, £90	£36, £45	£40, £140	£77, £33
£33, £44	£112.50, £87.50	£99, £22	£110, £90	£11, £49.50
£50, £94	£28, £24.50	£22, £33	£22, £55	£14, £10.50
£56, £88	£44, £16.50	£59.50, £42.50	£12, £4	£16, £88

Divide

£121 in the ratio 9 : 2	£110 in the ratio 7 : 3	£42 in the ratio 4 : 3	£60.50 in the ratio 8 : 3
£50 in the ratio 2 : 3	£200 in the ratio 9 : 7	£77 in the ratio 2 : 5	£24.50 in the ratio 4 : 3
£102 in the ratio 7 : 5	£144 in the ratio 3 : 5	£180 in the ratio 2 : 7	£80 in the ratio 3 : 5
£60.50 in the ratio 2 : 9	£104 in the ratio 3 : 5	£22.50 in the ratio 2 : 3	£104 in the ratio 2 : 11
£270 in the ratio 10 : 8	£16 in the ratio 3 : 1	£52.50 in the ratio 8 : 7	£81 in the ratio 4 : 5






TOTAL

14. Nate and Henry share a bag of 48 sweets in the ratio 7 : 5.

How many sweets does each person get?

What's the difference between the larger share and the smaller share?

[Draw a bar model to help.]

15. Pastry is made from flour and fat in the ratio 2 : 1.

How much flour will make 270 g of pastry?

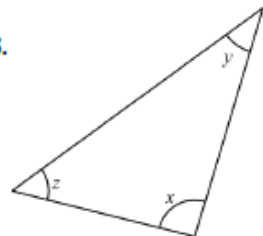
16. The ratio of men to women to children visiting the Tower of London one day was

4 : 5 : 6.

If 975 people visited the Tower of London, find out how many more children there were than men.

17. The angles  $x$ ,  $y$  and  $z$  in a triangle are in the ratio 5 : 1 : 3.

Work out the size of angles  $x$ ,  $y$  and  $z$ .



*Not drawn to scale*



## Week 4:

- **L1:** I can find one quantity given the other quantity and its ratio

### Demonstration Videos:

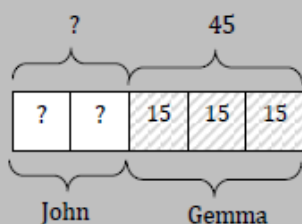
<https://corbettmaths.com/2013/05/16/ratio-given-one-quantity/>

### Tasks:

#### Concept corner

John and Gemma are sharing some sweets in the ratio 2 : 3.

Find John's share if Gemma's share is 45 sweets.

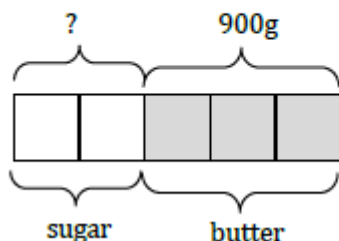


$$1 \text{ share} = 45 \div 3 = 15 \text{ sweets}$$

$$\text{So John's share} = 2 \times 15 = 30 \text{ sweets}$$

1. Sugar and butter are mixed in the ratio of 2 : 3.

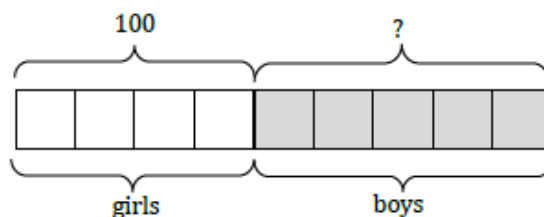
How much sugar is used with 900g of butter?



2. The ratio of girls to boys in a school is 4 : 5.

There are 100 girls.

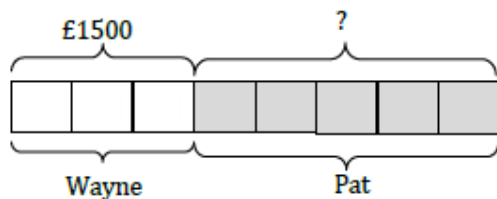
How many boys are there?



3. Lottery winnings were divided in the ratio 3 : 5.

Wayne got the smaller amount of £1500.

How much in total were the lottery winnings?

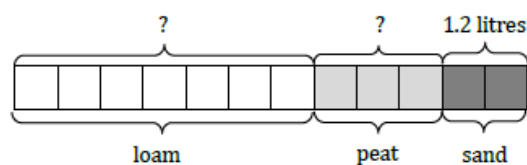


4. Compost is made from loam, peat and sand, in the ratio 7 : 3 : 2 respectively.

A gardener used 1.2 litres of sand to make some compost.

a) How much loam did she use?

b) How much peat?



**Question 1:** A drawer contains white socks and black socks only.  
The number of white socks to the number of black socks is in the ratio 1:3  
There are 12 white socks.

- Work out the number of black socks in the drawer.
- Work out the total number of socks in the drawer.

**Question 2:** James has some apples and oranges.  
The ratio of apples and oranges is 2:5  
He has 15 oranges.  
How many apples does James have?



**Question 3:** The ratio of lemon sweets to strawberry sweets in a tub is 5:3  
There are 120 lemon sweets in the tub.  
How many strawberry sweets are in the tub?

**Question 4:** Rachel has some first class and some second class stamps.  
The ratio of the number of first class to the number of second class stamps is 3:4  
Rachel has 18 first class stamps.

- How many second class stamps does Rachel have?
- How many stamps does Rachel have in total?

**Question 5:** Abby, Neil and Dylan share a sum of money in the ratio 2:4:5  
Neil receives £60  
Work out how much money Dylan receives.

**Question 6:** The ratio of the number of girls to the number of boys in a school is 9:10  
There are 900 boys in the school.



Divide

- £20 in the ratio 1 : 3
- £42 in the ratio 2 : 5
- £36 in the ratio 4 : 5
- £108 in the ratio 7 : 5
- 450 g in the ratio 2 : 13
- 2 kg in the ratio 3 : 5
- £16.80 in the ratio 2 : 1
- 2.5 m in the ratio 3 : 2



Divide

- £24 in the ratio 1:2:3
- £56 in the ratio 2:3:3
- £360 in the ratio 2:3:4
- £108 in the ratio 5:3:4
- 350 g in the ratio 2:4:1
- 5 kg in the ratio 4:9:12
- £90 in the ratio 7:13:10
- 1.8 m in the ratio 3:2:4



- A bag of sweets is shared between Anne and Bobby in the ratio 3:5. If Anne gets 21 sweets how many sweets does Bobby get?
- Craig and Dom share some money in the ratio 2:7. If Dom gets £250 more than Craig how much money did they share?
- The number of 5p, 10p, and 20p coins in a jar are in the ratio 7 : 4 : 3. If there are 5p coins are worth 70p calculate the total value of the money in the jar.



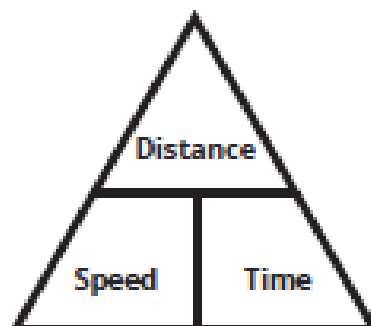
## Week 5:

- **L1:** I can calculate distance, speed and time

### Demonstration Videos:

<https://corbettmaths.com/2016/01/01/speed-distance-time/>

### Tasks:



#### Section 1

Calculate the distance travelled in each journey:

- a. 3 hours at 40mph

Distance = \_\_\_\_\_

Distance = \_\_\_\_\_ miles

- b. 55km/h for 3.5 hours

Distance = \_\_\_\_\_

Distance = \_\_\_\_\_ km

- c. 4 seconds at 3m/s

Distance = \_\_\_\_\_

Distance = \_\_\_\_\_ m

- d. 5.25 hours at 50km/h

Distance = \_\_\_\_\_

Distance = \_\_\_\_\_ km

- e. 30mph for 20 minutes

Distance = \_\_\_\_\_

Distance = \_\_\_\_\_ miles

#### Section 2

Calculate the average speed of each journey:

- a. 150 miles in 5 hours

Speed = \_\_\_\_\_

Speed = \_\_\_\_\_ mph

- b. 120 km in 3 hours

Speed = \_\_\_\_\_

Speed = \_\_\_\_\_ km/h

- c. 20m in 4 seconds

Speed = \_\_\_\_\_

Speed = \_\_\_\_\_ m/s

- d. 87.5 miles in 3.5 hours

Speed = \_\_\_\_\_

Speed = \_\_\_\_\_ mph

- e. 9km in 45 minutes

Speed = \_\_\_\_\_

Speed = \_\_\_\_\_ km/h

Calculate the time taken for each journey:

a. 150 miles at 50mph

Time = \_\_\_\_\_

Time = \_\_\_\_\_ hours

d. 5 miles at 50mph

Time = \_\_\_\_\_

Time = \_\_\_\_\_ minutes

b. 75km at 50km/h

Time = \_\_\_\_\_

Time = \_\_\_\_\_ hours

e. 1.5km at 2m/s

Time = \_\_\_\_\_

Time = \_\_\_\_\_ minutes

c. 25m at 2m/s

Time = \_\_\_\_\_

Time = \_\_\_\_\_ seconds

## Section 4

Complete the missing information in the table. Include units of measure in your answers.

Speed	Distance	Time
70mph		2 hours
	55km	11 hours
200km/h		45 minutes
0.5m/s	350cm	
	357.5 miles	5 hours 30 minutes
12mph		2 hours 15 minutes

## Week 5:

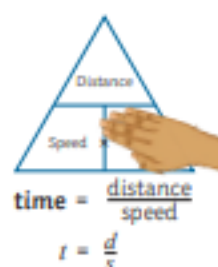
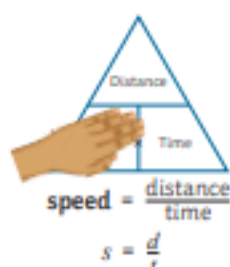
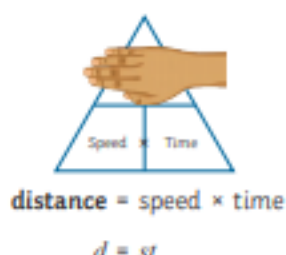
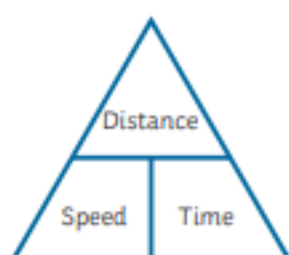
- **L1:** I can calculate speed, distance and time

### Demonstration Videos:

<https://corbettmaths.com/2016/01/01/speed-distance-time/>

### Tasks:

You might like to also remember the word itself: **distance**. The **d** is followed by **st**.



1. The table below shows information about the men's short course speed skating event. Complete the missing values by calculating either the distance, time or average speed.

The first row has been completed as an example.

Name	Country	Distance (m)	Time	Average Speed (m/s)
Eddie	UK	500	50 seconds	$\frac{500}{50} = 10$
Mikel	France	1200		12
Jan	Sweden		45 seconds	8
Jorgen	Norway	660	1 minute	
Erik	Russia	1350		15

2. Which male competitor was the fastest skater? \_\_\_\_\_

3. The table below shows information about the women's long course speed skating event. Complete the missing values by calculating either the distance, time or average speed.

Name	Country	Distance (km)	Time (minutes)	Average Speed (km/minute)
Bethany	UK	6	12	
Natalie	France		5	1.1
Agnetha	Sweden	10.5	25	
Anni	Norway		4.5	1.3
Anastasia	Russia	1500m		0.75



4. Which female competitor covered the **second** greatest distance?  
\_\_\_\_\_



Complete the table with the speed, distance or time for each object.

Remember to convert units if necessary!

Object	Speed	Distance	Time
Car		120 miles	2 hours
Train	50 km/h		4 hours
Sprinter	10 m/s	200 metres	
Bus	30 mph		3 hours
Van		20 km	30 minutes
Jogger	5 m/s	1 km	
Walker	5 mph		6 hours
Cyclist		250 km	10 hours
Train (high-speed)	120 mph		45 minutes
Power-Walker	8 km/h	800 m	



## DIGIT Puzzle

How many ways can you complete these measurements for a moving object?

Speed =

m/s

Distance =

metres

Time =

seconds



Use any digits

Use digits only once

What are the greatest & smallest distances you can create?





## Week 5:

- **L1:** I can calculate distance speed and time

### Demonstration Videos:

<https://corbettmaths.com/2016/01/01/speed-distance-time/>

### Tasks:

★	★ ★	★ ★ ★
<p>Calculate the average speed</p> <ol style="list-style-type: none"> <li>1) A car travels 60 km in 2 hours</li> <li>2) A cyclist travels 18 miles in 1 hour 30 minutes</li> <li>3) A girl cycles 4 km in 20 minutes</li> <li>4) A train travels 140 km in 1 hour 45 minutes</li> <li>5) A car travels 6 km in 5 minutes</li> <li>6) A cyclist travels 3 km in 10 minutes</li> </ol>	<p>Calculate the distance</p> <ol style="list-style-type: none"> <li>1) A car travels at a speed of 40 km/h for 2 hours</li> <li>2) A train travels at a speed of 60 mph for 1 hour 20 minutes</li> <li>3) A cyclist travels at a speed of 20 km/h for 15 minutes</li> <li>4) A snails travels at a speed of 4 cm per minute for 210 seconds</li> <li>5) A car travels at a speed of 72 mph for 35 minutes</li> <li>6) A train travel at a speed of 84 mph for 3 hours 10 minutes</li> </ol>	<p>Calculate the time</p> <ol style="list-style-type: none"> <li>1) A car covers a distance of 150 km at a speed of 60 km/h</li> <li>2) A cyclist covers a distance of 12 km at a speed of 18 km/h</li> <li>3) A train travels a distance of 60 miles at a speed of 80 mph</li> <li>4) A taxi travels a distance of 4 miles at a speed of 24 miles per hour.</li> <li>5) A car travels 100 km at a speed of 80 km/h</li> <li>6) A train travels 210 km at a speed of 90 km/h</li> </ol>

1. A bus travels 222 miles in 6 hours.  
What was the average speed of the bus?



2. Thomas drives 130 miles at an average speed of 40 mph.  
How long does the journey take Thomas?

3. A jumbo jet flies at 484 mph for 4 hours 30 minutes.  
How far does the jet travel?



4. Greg and Kevin both travel between two towns that are 90 miles apart.  
Greg drives and it takes him 1 hour 30 minutes.  
Kevin cycles and it takes him 7 hours 30 minutes.  
Work out the difference between their average speeds?

5. Harry catches the train from Belfast to Dublin at 4pm.  
The average speed of the train is 70mph and the distance from Belfast to Dublin is 105 miles.  
What time does Harry arrive in Dublin?

6. The distance from Sunderland to Wigan is 150 miles.  
Mollie leaves Sunderland in her car at 07:50.  
Her average speed on the journey is 60mph.  
What time does she arrive in Wigan?



## F1 speed challenge

- 1) Use the race distance and completion time to find out which track had the fastest average speed over the distance of the whole race.
- 2) Use the fastest lap times to calculate which track had the fastest average speed for the fastest lap. (You will not be given the distance per lap!)
- 3) Use your results to rank the tracks from fastest to slowest.

Race	Completion Time (hrs:mins)	Distance (km)	Number of Laps	Fastest Lap Time (min:sec)
Australia	1:48	308	58	1:29
China	1:39	305	56	1:35
Spain	1:41	307	66	1:25
Monaco	1:49	260	78	1:15
Canada	1:32	305	70	1:14
Britain	1:31	306	52	1:32
Belgium	1:24	308	44	1:47
Singapore	2:01	309	61	1:43
Italy	1:18	307	53	1:23
Japan	1:28	308	53	1:32

Track	Overall Race Speed	Fastest Lap Speed	Your Rank
Australia			
China			
Spain			
Monaco			
Canada			
Britain			
Belgium			
Singapore			
Italy			
Japan			

Extension:

- a) Can you make any general comments about the faster tracks? Are they shorter/longer?
- b) Are there any outlier tracks? Why could this be?
- c) Which is faster the speed from the fastest lap of the speed from the overall distance? Why?



Attainment Band :	Unit 4-Proportional Reasoning	
	Knowledge and Understanding	Skills
Yellow Plus	Recalls the correct conversions, understands how to work backwards to find the original amount 5*	Reverses percentages; finds the original quantity when given a value after a percentage increase or decrease 5 Converts units of measure, involving distance, speed and time questions 11b Uses unitary method to find equivalent ratios 14a Uses unitary method to find equivalent ratios including decimals 14b
Yellow	Understands direct proportion Knows to work in the same units of measure when solving problems involving distance, speed and time 11/12	Solves 2-step word problems involving ratio 8 Uses bar modelling or an alternative method to solve proportion problems 9 Finds one quantity given another and the ratio they are divided in 10 Uses the relationship between distance, speed and time (DST) to solve problems 11a Solves written problems using mathematical reasoning, involving DST 12 Solves worded problems involving percentage difference 13
Blue	Understands interest is added on to an amount 3* Rounds to 1 decimal place 14b	Solves problems involving interest 3 Calculates percentage increase 4 Divides a quantity in a given ratio 7 Solves written problems applying their fraction and mathematical logic 10 Writes equivalent ratios and finds missing term in a pair of equivalent ratios 8
Green	Understands the term increase/decrease 2*	Increases or decreases an amount by a given percentage 2 Solves written problems using logical reasoning, involving division 6
White	Understands how to change a fraction to a percentage 1*	Convert between a fraction and a percentage 1