

Maths Summer 2

Year 7

Blended Learning Booklet

Name:

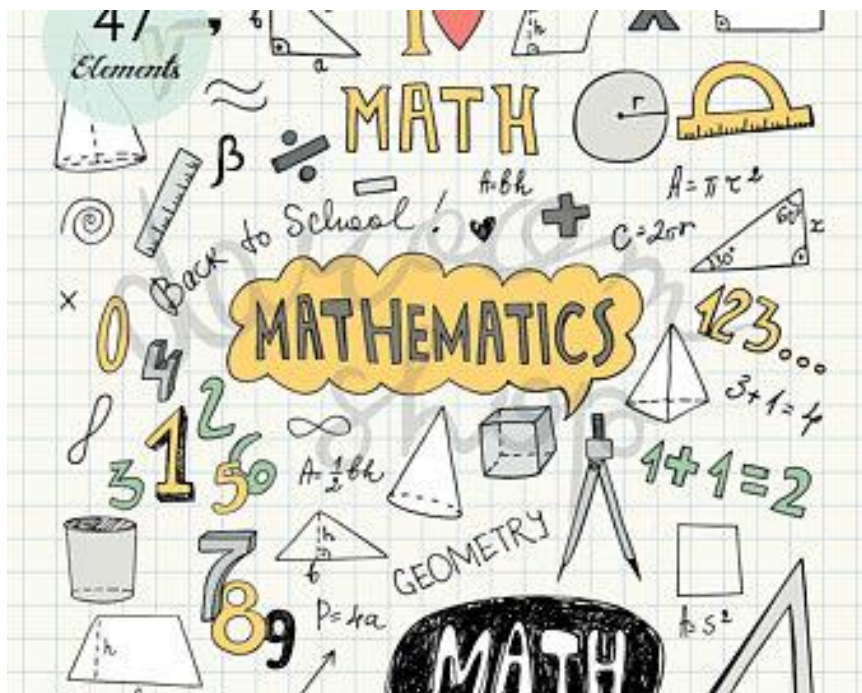
Form:

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 7 Overview

Page 4: Knowledge Organiser

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Page 23-28: Week 4 – Increase and decrease by a percentage, types of data, tally charts and two way tables

Page 29-36: Week 5 – Pictograms, line graphs and pie charts

Page 35-41: Week 6 – Drawing pie charts, misleading graphs

Page 42: Assessment Ladder

Other useful information/websites

The school login for MyMaths.co.uk is

stewards

The password is

triangle

Every topic in this booklet is covered on MyMaths.co.uk in the online lessons for further support at home.

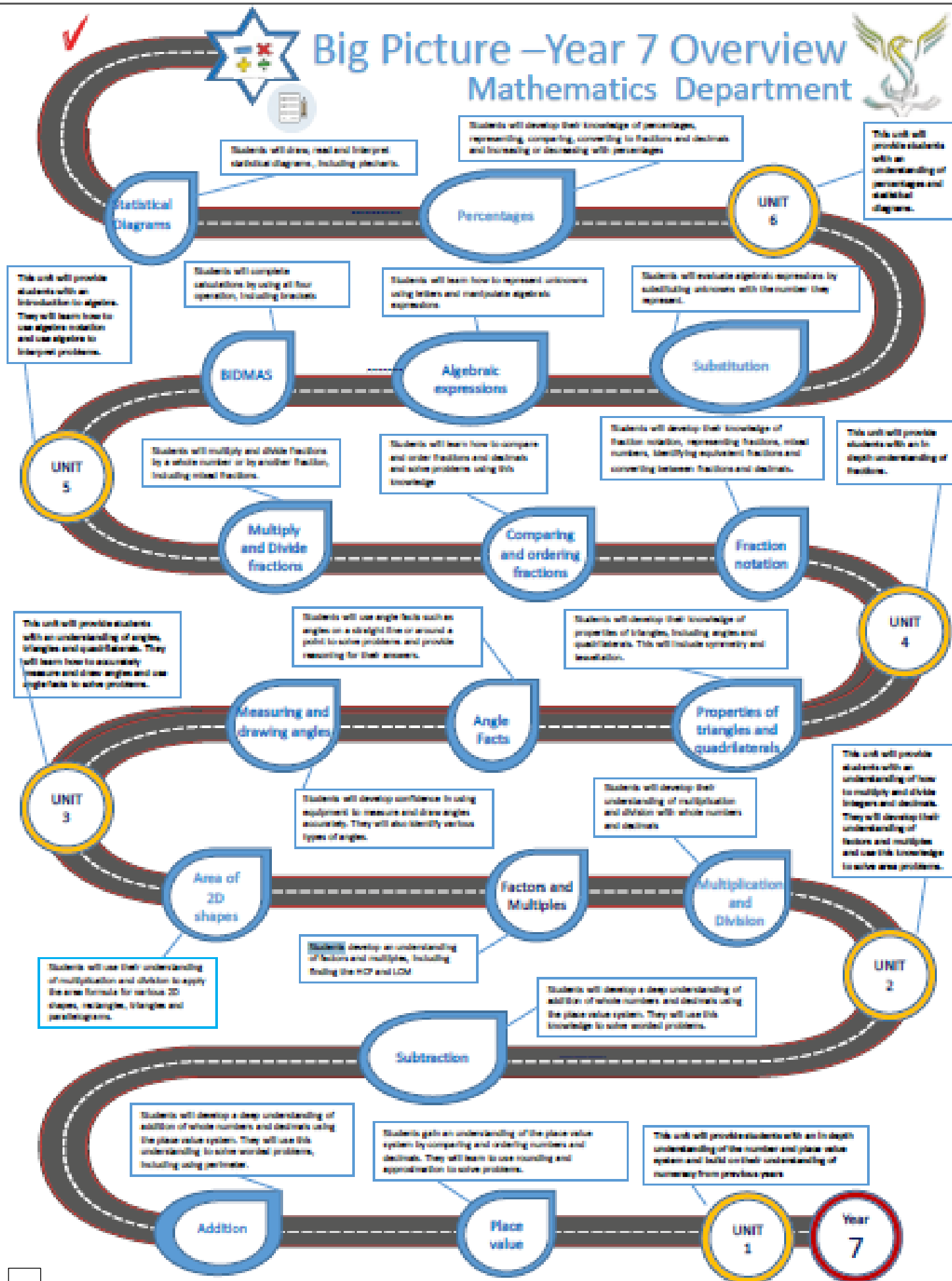
You also have a study guide (the pages you can use for each section are on your Knowledge Organiser – page 4)

Other websites you can look up information from include:

Oak National Academy

BBC Bitesize

MathsFun.com



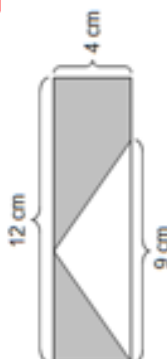


Revision guide reference pages
Pages 60, 61 and 97

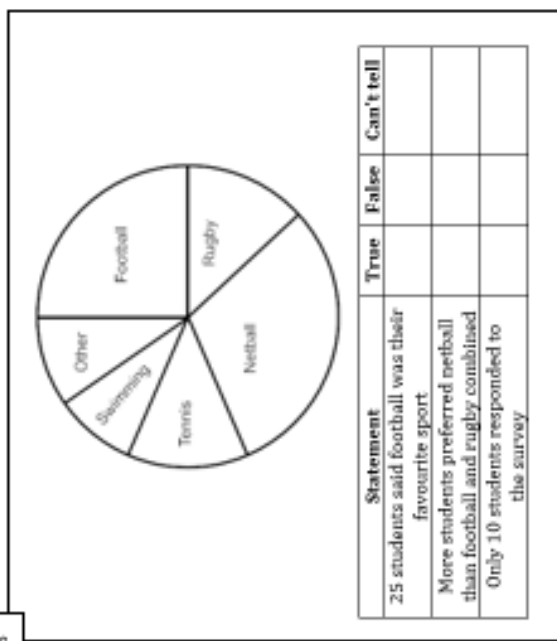


2 Del sells his goods for £80 making a 25% profit. How much did he pay for the good when he bought them?

5 Calculate the area of the shaded region:



8



14

Jim earns £550 per week. He spends 10% of his wages on food. How much money is this?

15

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 painting is sold at auction for £320 + a 15% auction fee. What will be the total cost?

12

Circle the larger of these two quantities,
 $\frac{5}{6}$ of 36 or 5% of 580?

17

John invests £2800 in a bank account. During the first year he earns 15% interest. How much interest will he get?

18

A TV priced £330 is reduced by 10% in a sale. How much would you save?

3

10% of a number is 9. Work out four times this number.
Three-quarters of a number is 12. Work out ten times the number.

6

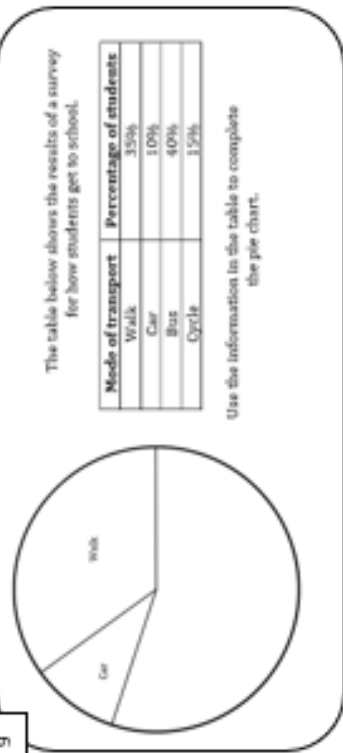
Which is the smallest?
 $\frac{3}{4}$ 0.7 76%

Which is the smallest?
 0.05 $\frac{1}{25}$ 40%

Which is the largest?
15% 1.5 $\frac{13}{10}$

Which is the largest?
115% 1.05 $\frac{51}{50}$

9



13

- 1) 10% of 50
- 2) 10% of 160
- 3) 10% of 320
- 4) 10% of 840
- 5) 10% of 500
- 6) 10% of 720
- 7) 10% of 370
- 8) 10% of 2900

10

- 1) 5% of 60
- 2) 20% of 140
- 3) 20% of 70
- 4) 5% of 280
- 5) 20% of 360
- 6) 5% of 460
- 7) 20% of 980
- 8) 5% of 820

11

- 1) 10 out of 100
- 2) 20 out of 100
- 3) 15 out of 100
- 4) 75 out of 100
- 5) 2 out of 10
- 6) 5 out of 10
- 7) 4 out of 10
- 8) 1 out of 10

7

- 1) 20 out of 50
- 2) 35 out of 50
- 3) 20 out of 25
- 4) 7 out of 25
- 5) 4 out of 20
- 6) 11 out of 20
- 7) 19 out of 25
- 8) 3 out of 20

11

- 1) 12 out of 40
- 2) 102 out of 200
- 3) 8 out of 40
- 4) 7 out of 40
- 5) 36 out of 300
- 6) 52 out of 200
- 7) 3 out of 40
- 8) 48 out of 300

Week 1:

- **L1:** I can understand percentage as a fractional operator with denominator of 100

Demonstration Video: <https://www.youtube.com/watch?v=JeVSmq1Nrpw>

Tasks:

Concept Corner

Fill in the spaces below:

denominator	decimals	simplified
fraction	100	

A percentage can also be represented as a _____ out of _____.

Percentages can be converted into fractions. Sometimes these can be _____:

$$36\% = \frac{36}{100} = \frac{9}{25}$$

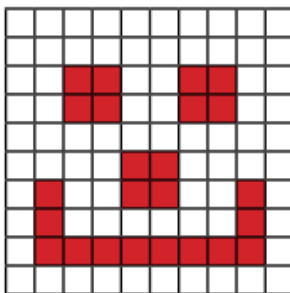
$$75\% = \frac{\quad}{100} = \frac{\quad}{\quad}$$

Percentages can also be converted into _____:

$$17\% = \frac{17}{100} = 0.17$$

$$0.05 = \frac{\quad}{100} = \quad\%$$

Per cent means *in every hundred*.
A percentage is just a fraction out of a hundred.
The symbol for percent is %.
20% is read as *twenty percent*.



Here are 100 squares. 24 of them are red.

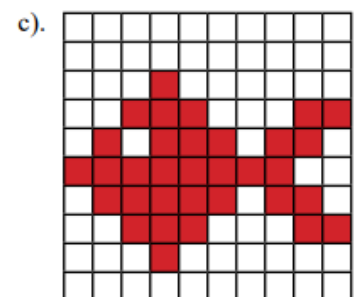
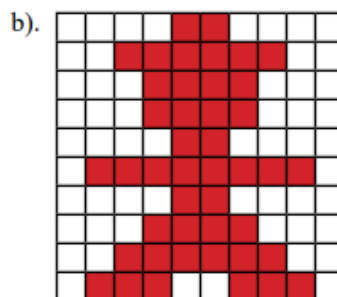
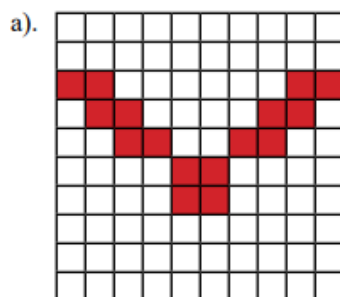
Compare the number of red squares with the total number of squares.

24 out of the 100 squares are red.

This can be expressed in three ways:

Fraction	Percentage	Decimal
$\frac{24}{100}$	24%	0.24

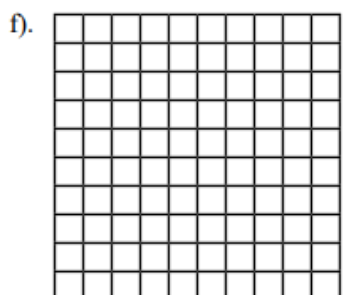
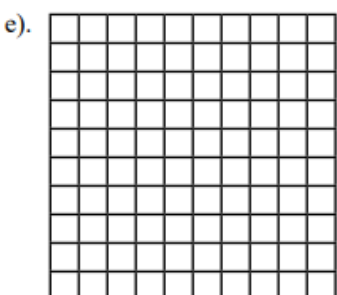
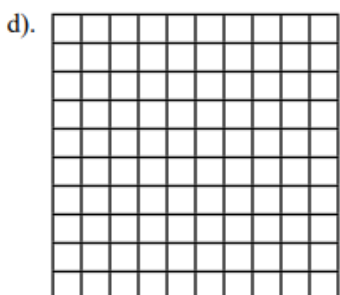
2). Complete the questions. Colour the squares where necessary.



Fraction	Percentage	Decimal
$\frac{12}{100}$		

Fraction	Percentage	Decimal
		0.44

Fraction	Percentage	Decimal



Fraction	Percentage	Decimal
$\frac{12}{100}$		

Fraction	Percentage	Decimal
	58%	

Fraction	Percentage	Decimal
		0.08

Question 1: There are 20 apples on a tree.
3 of the apples are bad.
What percentage of the apples are bad?



Question 2: James sat an English test.
He scored 39 out of 50.
What percentage did he get right?

Question 3: Helen takes 25 shots at basketball training.
She misses 7 shots.
What percentage of the shots did Helen miss?



Question 4: There are 40 passengers on a bus.
14 passengers are going to Newport.
What percentage of the passengers are going to Newport?

Question 5: Randalstown Rugby Club play 8 matches and win 7 of the matches.
What percentage of the matches did Randalstown win?

Question 6: Freddy sits a physics test.
He gets 38 out of 40 correct.
What percentage did he get right?



Question 7: There are 500 students at a school.
141 of the students study Spanish.
What percentage of the students study Spanish?



Question 8: There are 30 students in a class.
4 of the students are left handed.
What percentage of the students are right handed?

10% of the world are left handed.
What fraction of the world are right handed?

32% of people voted for the Yellow Party in an election.
What fraction of people voted for the Yellow Party?

Rebecca spent 85% of her pocket money this week.
What fraction of her pocket money did she spend?

Neil got 52% of questions correct on a test.
What fraction of questions did he get correct?

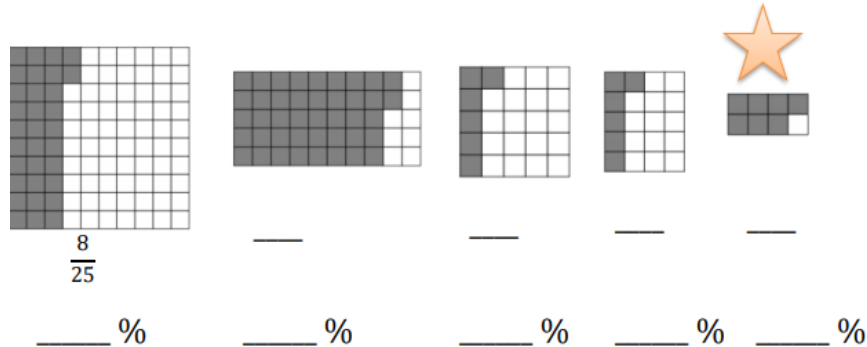
Week 1:

- **L1:** I can express a part of a whole as a percentage

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

Tasks:

What fraction and percentage of each of these grids is shaded?



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 | |



Question 1: Kristina receives £5 from her Grandmother.
She gives £1 to her sister.
What percentage of the £5 did she give to her sister?

Question 2: For every 50 fans at an ice hockey match between Belfast and Cardiff,
20 of the fans support Cardiff.
(a) Work out 20 as a percentage of 50.

1000 fans attend the match between Belfast and Cardiff.
(b) How many Cardiff fans attend the match?

Question 3: Danny scored 13 out of 20 in a quiz.



(a) Work out the percentage of questions Danny answered correctly.
(b) Work out the percentage of questions Danny answered incorrectly.

Question 4: Jake brings 400 cupcakes to a school fête.
He sells 350 of the cupcakes.
Jake says that he has sold over 85% of the cupcakes.



Is Jake correct?

Question 5: A cereal bar weighs 24g.
The cereal bar contains 3.8g of protein.
Work out what percentage of the cereal bar is protein.

Question 6: Hannah scored 60 out of 90 in a French test.
She scored 50 out of 80 in a drama test.
Hannah scored 85 out of 130 in an art test.
She scored 13 out of 20 in a maths test.
Arrange the subject in order from the highest percentage to lowest percentage.

Question 7: Bryan and Ryan are buying a car that costs £15000.
Bryan pays a deposit of £2000
Ryan pays a deposit that is 40% more than Bryan's deposit.
Work out the percentage of total cost that is left to pay.

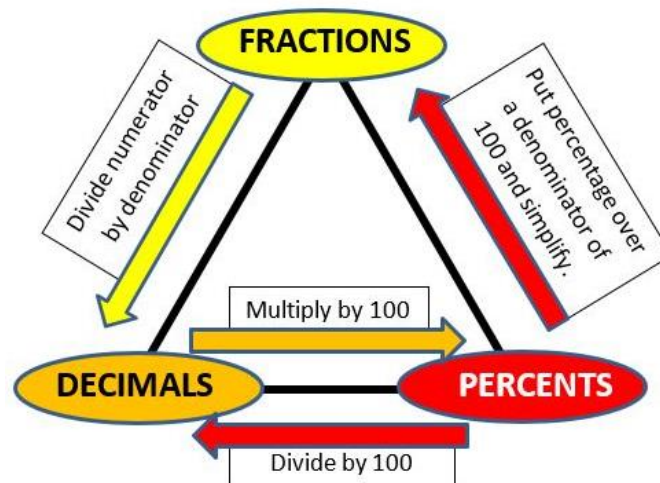


Week 1:

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

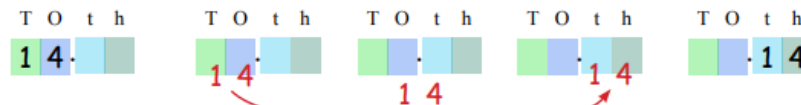
Demonstration Videos: <https://corbettmaths.com/2012/08/20/percentages-to-fractions/>
<https://corbettmaths.com/2012/08/19/percentages-to-decimals/>

Tasks:

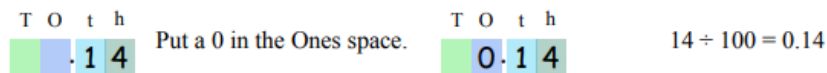


To divide by 100 we move the digits two spaces to the right.

Example: $14 \div 100$



The decimal point stays in the same place and the digits move two spaces to the right.



Move the digits one or two spaces to the right to find the answers.
The column headings at the side may help you.



- 1). $4 \div 10 = \boxed{}$ 2). $4 \div 100 = \boxed{}$ 3). $6 \div 10 = \boxed{}$
- 4). $6 \div 100 = \boxed{}$ 5). $9 \div 10 = \boxed{}$ 6). $9 \div 100 = \boxed{}$
- 7). $17 \div 10 = \boxed{}$ 8). $17 \div 100 = \boxed{}$ 9). $35 \div 10 = \boxed{}$
- 10). $35 \div 100 = \boxed{}$ 11). $86 \div 10 = \boxed{}$ 12). $86 \div 100 = \boxed{}$

0.01	0.99	0.22	0.2	0.55
0.1	0.07	0.02	0.6	0.25
0.9	0.06	0.62	0.4	0.75
0.09	0.45	0.3	0.48	0.04
0.15	0.66	0.33	0.7	0.19

20%	1%	70%	9%
2%	4%	62%	33%
55%	19%	25%	6%
90%	30%	40%	15%
48%	10%	99%	75%

50% means 50 out of every 100 or $\frac{50}{100}$ Cancel down for a fraction $\frac{50}{100} = \frac{1}{2}$
 Divide by 100 for a decimal $50 \div 100 = 0.5$

$\frac{50}{100}$ means $50 \div 100$

Change each of these percentages to a). a fraction, b). a decimal.

- | | | | | |
|----------|-----------|-----------|-----------|-----------|
| 1). 25% | 2). 75% | 3). 45% | 4). 80% | 5). 95% |
| 6). 12% | 7). 42% | 8). 10% | 9). 68% | 10). 20% |
| 11). 18% | 12). 35% | 13). 41% | 14). 74% | 15). 190% |
| 16). 2% | 17). 13% | 18). 65% | 19). 4% | 20). 88% |
| 21). 29% | 22). 155% | 23). 36% | 24). 140% | 25). 8% |
| 26). 99% | 27). 5% | 28). 122% | 29). 1% | 30). 103% |

Question 1: Write each of the following percentages as fractions.
 If possible, simplify each answer.

- | | | | |
|---------|---------|---------|---------|
| (a) 3% | (b) 14% | (c) 66% | (d) 10% |
| (e) 17% | (f) 30% | (g) 50% | (h) 25% |
| (i) 15% | (j) 29% | (k) 16% | (l) 44% |
| (m) 99% | (n) 85% | (o) 52% | (p) 80% |
| (q) 60% | (r) 20% | (s) 5% | (t) 72% |
| (u) 98% | (v) 2% | (w) 88% | (x) 15% |

Question 2: Write each of the following percentages as fractions.
 If possible, simplify each answer.

- | | | | |
|----------|----------|----------|----------|
| (a) 111% | (b) 130% | (c) 150% | (d) 110% |
| (e) 125% | (f) 165% | (g) 160% | (h) 144% |
| (i) 240% | (j) 390% | (k) 358% | (l) 820% |

GCSE — AQA Foundation: June 2017 Paper 2, Q17

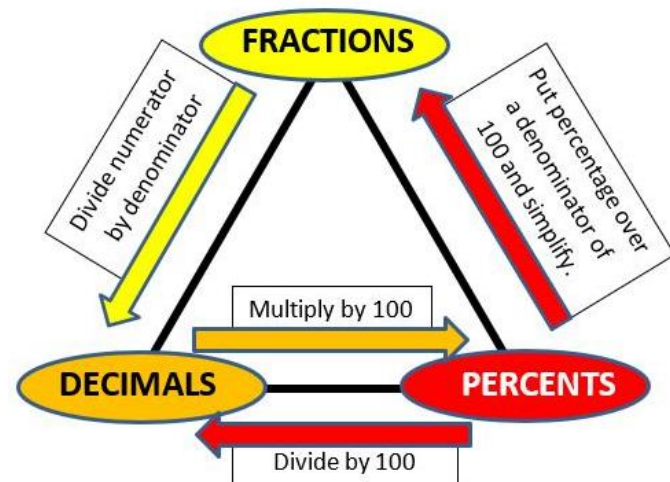
- | | | |
|---|---|----------|
| 1 | Circle the fraction equal to 0.3% | [1 mark] |
| | $\frac{3}{10}$ $\frac{3}{100}$ $\frac{3}{1000}$ $\frac{3}{10000}$ | |
| 2 | Circle the fraction equal to 0.5% | [1 mark] |
| | $\frac{1}{200}$ $\frac{5}{100}$ $\frac{0.5}{1000}$ $\frac{5}{200}$ | |
| 3 | Circle the fraction equal to 5.5% | [1 mark] |
| | $\frac{11}{2000}$ $\frac{11}{20}$ $\frac{55}{100}$ $\frac{11}{200}$ | |

Week 2:

- LI: I can convert between fractions, decimals and percentages, decimals to percentages and fractions

Demonstration Videos: <https://corbettmaths.com/2013/02/15/decimals-to-fractions/>
<https://corbettmaths.com/2013/02/15/decimals-to-fractions-calculator/>
<https://corbettmaths.com/2012/08/19/decimals-to-percentages/>

Tasks:



Complete the following:

	O	t	h	th	tth	hth
3 tenths, 5 hundredths, 7 thousandths, 4 hundred thousandths =	0	3	5	7	0	4
2 tenths, 3 thousandths, 9 hundred thousandths =	0					
4 tenths, 2 hundredths, 8 thousandths, 5 ten thousandths =	0					
7 tenths, 9 hundred thousandths =	0					
3 tenths, 5 hundredths, 7 thousandths, 2 ten thousandths, 4 hundred thousandths =	0					
8 tenths, 5 ten thousandths =	0					
3 hundred thousandths =	0					
$\frac{1}{10}$						
$\frac{1}{100}$						
$\frac{1}{1000}$						
$\frac{1}{10000}$						
$\frac{1}{100000}$						
One tenth						
One hundredth						
One thousandth						
One ten thousandth						
One hundred thousandth						

Example. Write the following decimals as fractions a). 0.763 b). 2.41521

a). 0.763 is 763 thousandths = $\frac{763}{1000}$ b). 2.41521 is 2 and 41521 hundred thousandths = $2 \frac{41521}{100000}$

Write the following decimals as fractions. Do not cancel them to their lowest terms.

- | | | | | |
|------------|------------|------------|------------|------------|
| 1). 0.4 | 2). 0.2 | 3). 1.3 | 4). 5.9 | 5). 2.7 |
| 6). 0.24 | 7). 0.36 | 8). 0.05 | 9). 3.47 | 10). 6.96 |
| 11). 0.214 | 12). 0.939 | 13). 7.316 | 14). 4.005 | 15). 8.205 |
| 16). 3.6 | 17). 0.84 | 18). 6.045 | 19). 0.73 | 20). 4.016 |

Example. Write the following decimals as fractions a). 0.7 b). 0.47.

a). 0.7 is 7 tenths = $\frac{7}{10}$ b). 0.47 is 4 tenths and 7 hundredths or 47 hundredths = $\frac{47}{100}$

Write the following decimals as fractions:

- 1). 0.13 2). 0.57 3). 0.83 4). 0.4 5). 0.38 6). 0.1 7). 0.01
 8). 0.5 9). 0.08 10). 0.67 11). 0.2 12). 0.99 13). 0.31 14). 0.9
 15). 0.3 16). 0.71 17). 0.06 18). 0.17 19). 0.8 20). 0.26 21). 0.49

Complete the tables below.

Fill in the missing numbers so that the decimals and fractions are equivalent in each row.

The first one has been done for you.

a).

Decimal	Fraction
0.5	$\frac{1}{2}$
0.2 <input type="text"/>	$\frac{\text{}{4}$
<input type="text"/> .3	$\frac{3}{\text{}}$
0.7 <input type="text"/>	$\frac{\text{}{4}$

b).

Decimal	Fraction
0. <input type="text"/>	$\frac{7}{10}$
0.8	$\frac{4}{\text{}}$
<input type="text"/> .9	$\frac{1\text{}}{10}$
2. <input type="text"/>	$\frac{\text{}3}{5}$

Turning a decimal into a percentage you just multiply by 100 and write % at the end!



Express as a percentage

- 1) 0.55
- 2) 0.49
- 3) 0.15
- 4) 0.2
- 5) 0.08
- 6) 0.9
- 7) 0.7
- 8) 0.01

Week 2:

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

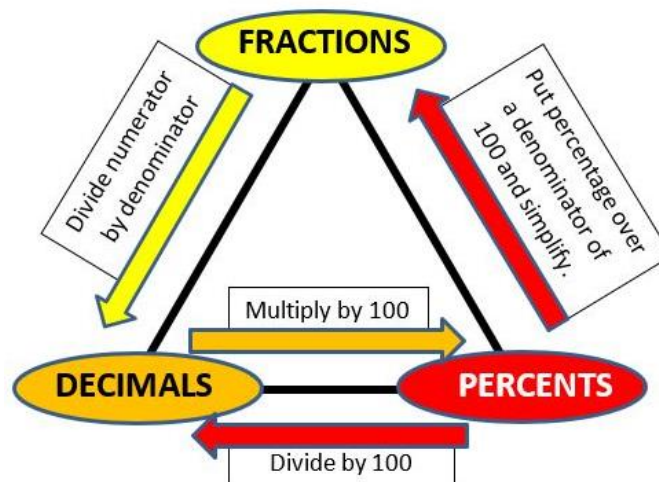
Demonstration Videos: <https://corbettmaths.com/2013/03/29/fractions-to-percentages/>
<https://corbettmaths.com/2013/02/15/fractions-to-decimals/>

$$\frac{42}{120} = \frac{7}{20} \xrightarrow{\times 5} \frac{35}{100} = 35\%$$

Tasks:

Question 1: Convert the following fractions into percentages.

- | | | | |
|---------------------|---------------------|-----------------------|----------------------|
| (a) $\frac{9}{50}$ | (b) $\frac{3}{10}$ | (c) $\frac{4}{5}$ | (d) $\frac{12}{25}$ |
| (e) $\frac{3}{4}$ | (f) $\frac{9}{10}$ | (g) $\frac{36}{50}$ | (h) $\frac{13}{20}$ |
| (i) $\frac{1}{5}$ | (j) $\frac{3}{20}$ | (k) $\frac{24}{25}$ | (l) $\frac{7}{10}$ |
| (m) $\frac{17}{20}$ | (n) $\frac{13}{10}$ | (o) $\frac{184}{200}$ | (p) $\frac{39}{300}$ |



Question 2: Convert the following fractions into percentages.

- | | | | |
|-----------------------|---------------------|----------------------|----------------------|
| (a) $\frac{3}{8}$ | (b) $\frac{32}{40}$ | (c) $\frac{13}{200}$ | (d) $\frac{7}{8}$ |
| (e) $\frac{7}{40}$ | (f) $\frac{5}{8}$ | (g) $\frac{48}{60}$ | (h) $\frac{60}{400}$ |
| (i) $\frac{171}{200}$ | (j) $\frac{52}{80}$ | (k) $\frac{19}{40}$ | (l) $\frac{57}{40}$ |

Question 3: Convert the following fractions into percentages.

- | | | | |
|----------------------|---------------------|--------------------|----------------------|
| (a) $\frac{1}{8}$ | (b) $\frac{17}{40}$ | (c) $\frac{5}{16}$ | (d) $\frac{53}{400}$ |
| (e) $\frac{38}{125}$ | (f) $\frac{15}{16}$ | (g) $\frac{7}{32}$ | (h) $\frac{10}{64}$ |

Change the following fractions to percentages.

- 1). $\frac{1}{4} = \frac{\quad}{100}$
- 2). $\frac{1}{10} = \frac{\quad}{100}$
- 3). $\frac{9}{25} = \frac{\quad}{100}$
- 4). $\frac{4}{10} = \frac{\quad}{100}$
- 5). $\frac{12}{20} = \frac{\quad}{100}$
- 6). $\frac{24}{50}$
- 7). $\frac{4}{20}$
- 8). $\frac{4}{5}$
- 9). $\frac{7}{20}$
- 10). $\frac{2}{5}$
- 11). $\frac{7}{10}$
- 12). $\frac{15}{20}$
- 13). $\frac{7}{25}$
- 14). $\frac{9}{20}$
- 15). $\frac{3}{4}$
- 16). $\frac{3}{25}$
- 17). $\frac{45}{50}$
- 18). $\frac{9}{10}$
- 19). $\frac{27}{50}$
- 20). $\frac{3}{5}$
- 21). $\frac{34}{50}$
- 22). $\frac{24}{25}$
- 23). $\frac{18}{20}$
- 24). $\frac{3}{10}$
- 25). $\frac{1}{5}$
- 26). $\frac{28}{50}$
- 27). $\frac{11}{20}$
- 28). $\frac{19}{20}$
- 29). $\frac{49}{50}$
- 30). $\frac{17}{20}$



Converting Fractions to Decimals (Using Division) 1



Write each fraction as a division sentence, then use a calculator to find the decimal equivalent.
Write all the digits shown on your calculator.

- 1). $\frac{3}{4} = \square \div \square = \square$
- 2). $\frac{9}{10} = \square \div \square = \square$
- 3). $\frac{3}{8} = \square \div \square = \square$
- 4). $\frac{7}{16} = \square \div \square = \square$
- 5). $\frac{1}{3} = \square \div \square = \square$
- 6). $\frac{5}{7} = \square \div \square = \square$
- 7). $\frac{4}{9} = \square \div \square = \square$
- 8). $\frac{5}{12} = \square \div \square = \square$
- 9). $\frac{9}{13} = \square \div \square = \square$
- 10). $\frac{7}{19} = \square \div \square = \square$

- 11). What do you notice about questions 1). to 4). and questions 5). to 10).?

Example. Write the following fractions as decimals a). $\frac{6}{10}$ b). $\frac{67}{100}$.

- a). $\frac{6}{10}$ is 6 tenths = 0.6 b). $\frac{67}{100}$ is 67 hundredths or 6 tenths and 7 hundredths = 0.67

Write the following fractions as decimals:

- 1). $\frac{14}{100}$
- 2). $\frac{46}{100}$
- 3). $\frac{3}{10}$
- 4). $\frac{53}{100}$
- 5). $\frac{22}{100}$
- 6). $\frac{4}{10}$
- 7). $\frac{69}{100}$
- 8). $\frac{8}{10}$
- 9). $\frac{28}{100}$
- 10). $\frac{78}{100}$
- 11). $\frac{1}{10}$
- 12). $\frac{19}{100}$
- 13). $\frac{35}{100}$
- 14). $\frac{5}{10}$
- 15). $\frac{49}{100}$
- 16). $\frac{9}{10}$
- 17). $\frac{92}{100}$
- 18). $\frac{56}{100}$
- 19). $\frac{29}{100}$
- 20). $\frac{2}{10}$
- 21). $\frac{81}{100}$

Week 2:

- **LI:** I can convert between fractions, decimals and percentages

Demonstration Videos: On previous lessons pages

Tasks:

Question 1: Write these decimals as percentages

- (a) 0.31 (b) 0.16 (c) 0.22 (d) 0.06 (e) 0.02 (f) 0.8
 (g) 0.4 (h) 0.185 (i) 0.204 (j) 0.092 (k) 1.24 (l) 2.8

Question 2: Write these percentages as decimals

- (a) 18% (b) 27% (c) 60% (d) 3% (e) 55% (f) 80%
 (g) 1% (h) 9.2% (i) 41.5% (j) 0.8% (k) 180% (l) 315%

Question 3: Write these decimals as fractions

- (a) 0.7 (b) 0.4 (c) 0.15 (d) 0.88 (e) 0.79 (f) 0.04
 (g) 0.404 (h) 0.125 (i) 0.625 (j) 0.123 (k) 1.6 (l) 2.25

Question 4: Write these fractions as decimals

- (a) $\frac{3}{10}$ (b) $\frac{3}{5}$ (c) $\frac{81}{100}$ (d) $\frac{9}{20}$ (e) $\frac{1}{8}$ (f) $\frac{19}{40}$
 (g) $\frac{7}{8}$ (h) $\frac{13}{20}$ (i) $\frac{33}{50}$ (j) $\frac{19}{10}$ (k) $\frac{83}{20}$ (l) $\frac{123}{40}$

Question 5: Write these percentages as fractions

- (a) 70% (b) 60% (c) 95% (d) 24% (e) 79% (f) 82%
 (g) 37.5% (h) 1.8% (i) 11.5% (j) 0.06% (k) 160% (l) 285%

Question 6: Write these fractions as percentages

- (a) $\frac{9}{10}$ (b) $\frac{1}{5}$ (c) $\frac{99}{100}$ (d) $\frac{3}{25}$ (e) $\frac{17}{20}$ (f) $\frac{7}{8}$
 (g) $\frac{7}{40}$ (h) $\frac{3}{8}$ (i) $\frac{43}{50}$ (j) $\frac{123}{200}$ (k) $\frac{5}{9}$ (l) $\frac{53}{20}$



Question 1: $\frac{3}{5}$ of a fruit punch is orange juice.

What percentage of the fruit punch is orange juice?

Question 2: 18% of a class wear glasses.

What fraction of the class wear glasses?

Question 3: Benny says that 0.2 is smaller than 19%.

Is he correct? Explain your answer.

Question 4: Mike got 58% of questions correct on a test.

What fraction of questions did he get correct?

Question 5: A school has three year groups: year 7, year 8 and year 9.

30% of the students are in year 7

36% of the students are in year 8

What fraction of the students at the school are in year 9?

Question 6: Which is larger? Show your working out

(a) 78% or 0.8

(b) $\frac{1}{5}$ or 0.23

(c) $\frac{3}{4}$ or 0.73

(d) $\frac{17}{20}$ or 0.87

(e) $\frac{5}{8}$ or 0.61

(f) 109% or 1.1

(g) 43% or $\frac{17}{40}$

(h) $\frac{13}{10}$ or 128%

(i) $\frac{5}{2}$ or 2.8

Question 7: Arrange the following in order, from smallest to largest.

(a) $\frac{1}{4}$ 0.19 0.3 26% $\frac{1}{5}$

(b) 0.9 $\frac{17}{20}$ $\frac{4}{5}$ 88% 0.79

(c) 11% 0.2 13% $\frac{3}{20}$ $\frac{1}{8}$

(d) $\frac{2}{3}$ 65% 0.68 $\frac{7}{10}$ $\frac{5}{8}$

(e) 101% $\frac{11}{10}$ 1.2 $\frac{19}{20}$ 0.9

(f) 1.5 $\frac{5}{3}$ 82% $\frac{7}{4}$ $\frac{37}{40}$

Week 3:

- **L1:** I can find fractions and percentages of given quantities

Demonstration Video: <https://corbettmaths.com/2012/08/20/fractions-of-amounts/>

Tasks:

Question 1: Work out each of the following

- (a) $\frac{1}{2}$ of 10 (b) $\frac{1}{3}$ of 18 (c) $\frac{1}{5}$ of 20 (d) $\frac{1}{4}$ of 24
- (e) $\frac{1}{9}$ of 27 (f) $\frac{1}{10}$ of 160 (g) $\frac{1}{8}$ of 80 (h) $\frac{1}{7}$ of 49
- (i) $\frac{1}{2}$ of 9 (j) $\frac{1}{5}$ of 65 (k) $\frac{1}{12}$ of 72 (l) $\frac{1}{11}$ of 132

Question 2: Work out each of the following

- (a) $\frac{2}{3}$ of 15 (b) $\frac{7}{10}$ of 20 (c) $\frac{2}{5}$ of 30 (d) $\frac{3}{4}$ of 32
- (e) $\frac{3}{5}$ of 45 (f) $\frac{2}{7}$ of 28 (g) $\frac{3}{8}$ of 88 (h) $\frac{3}{10}$ of 120
- (i) $\frac{5}{9}$ of 63 (j) $\frac{13}{20}$ of 60 (k) $\frac{2}{7}$ of 91 (l) $\frac{4}{15}$ of 120

Question 3: Work out each of the following.
Include suitable units.

- (a) $\frac{1}{3}$ of £21 (b) $\frac{3}{4}$ of 100kg (c) $\frac{2}{3}$ of 27cm (d) $\frac{7}{8}$ of 32 seconds
- (e) $\frac{2}{5}$ of 90 miles (f) $\frac{5}{6}$ of £150 (g) $\frac{5}{12}$ of 240ml (h) $\frac{9}{10}$ of 310 students
- (i) $\frac{1}{8}$ of a day (j) $\frac{4}{5}$ of 1km (k) $\frac{3}{7}$ of 2 weeks (l) $\frac{1}{500}$ of 1m

Question 4: Work out each of the following.

- (a) $\frac{3}{10}$ of 32 miles (b) $\frac{2}{5}$ of 9kg (c) $\frac{1}{3}$ of 8 litres (d) $\frac{3}{5}$ of £7
- (e) $\frac{1}{8}$ of 50cm (f) $\frac{1}{5}$ of 4931km (g) $\frac{3}{4}$ of £57 (h) $\frac{2}{9}$ of 211km

Question 5: Work out the largest of each of the following pairs.

- (a) $\frac{1}{3}$ of 21 *or* $\frac{1}{2}$ of 12 (b) $\frac{1}{6}$ of 30 *or* $\frac{2}{3}$ of 9 (c) $\frac{2}{5}$ of 65 *or* $\frac{3}{4}$ of 32
- (d) $\frac{1}{5}$ of 2m *or* $\frac{3}{4}$ of 60cm (e) $\frac{3}{8}$ of a day *or* $\frac{1}{10}$ of 85 hours
- (f) $\frac{7}{15}$ of 480 *or* $\frac{2}{3}$ of 453 (g) $\frac{3}{10}$ of 395 *or* $\frac{2}{7}$ of 420

Question 1: James has 20 sweets.

$\frac{3}{4}$ of the sweets are red.

How many sweets are red?



Question 2: In a class, there are 24 students.

$\frac{1}{8}$ of the students wear glasses.

How many students wear glasses?

Question 3: There are 40 apples in a crate.

$\frac{3}{5}$ of the apples are bad.

How many good apples are there?



Question 7: The attendance at a Sheffield United match is 15,291

$\frac{2}{9}$ of the crowd are children.

How many adults attended the match?



Question 8: There are 194 students in a primary school.

Mr Wallace says that exactly $\frac{1}{4}$ of the students are left handed.

Explain why Mr Wallace must be wrong.

Question 9: Connor has saved £450.

He spends $\frac{1}{5}$ of the £450 on a new tyre for his car.

Connor spends $\frac{2}{3}$ of the £450 on a new guitar.

What fraction of the £450 does Connor have left?

Question 10: The size of a jar of coffee is increased by one-fifth.

The new size is later reduced by one-fifth.

Is the new jar smaller, the same size or larger than the original?

Explain how you worked out your answer.

Question 11: A company earns £3,178,784 in 2016.

$\frac{4}{7}$ of the income is spent on salaries.

How much money does the company spend on salaries in 2016?

Week 3:

- **L1:** I can find fractions and percentages of given quantities

Demonstration Videos: <https://corbettmaths.com/2012/08/20/percentages-of-amounts-non-calculator/>

<https://corbettmaths.com/2013/02/15/percentages-of-an-amount-calculator/>

Tasks:

13	28	65	17	18
37	44	15	140	44
112	27	24	22	10
13	54	20	42	62
23	80	8	70	104

10% of 540

20% of 400

10% of 620

20% of 560

10% of 370

10% of 80

10% of 100

10% of 230

10% of 650

20% of 350

10% of 150

20% of 90

10% of 420

20% of 220

10% of 130

20% of 520

10% of 270

20% of 140

20% of 700

10% of 200

TOTAL

10	12	15	4	48
19	15	40	60	61
8	7	36	9	42
28	23	20	45	54
5	14	25	9	22

5% of 140

10% of 90

10% of 610

10% of 40

10% of 230

5% of 560

5% of 300

10% of 120

5% of 400

5% of 800

5% of 280

10% of 190

5% of 180

10% of 600

10% of 360

10% of 450

10% of 540

10% of 480

10% of 420

5% of 500

TOTAL

Question 1: Calculate the following

- (a) 15% of 80ml (b) 9% of 205kg (c) 45% of £135 (d) 17% of 540km
 (e) 53% of 700g (f) 14% of 12 hours (g) 31% of 280kg (h) 6% of 4GB
 (i) 85% of 1250ml (j) 66% of 9.4 miles (k) 97% of \$54 (l) 13% of 0.5 tonnes

Question 2: Calculate the following

- (a) 2.5% of 60cm (b) 7.2% of 104ml (c) 24.5% of 30m (d) 47.9% of £3200
 (e) 0.3% of 44km (f) 85.2% of 6000 marks (g) 0.25% of \$840 (h) 3.175% of 52g

Question 3: Calculate the following

- (a) 109% of 30m (b) 124% of 38 seconds (c) 186% of £40 (d) 196% of 20 miles
 (e) 220% of 15g (f) 140.5% of 180kg (g) 371% of £60 (h) 1054% of 70 hours



Stewards Academy

Question 1: In year 9, there are 150 students
16% of the students are left handed.

- (a) Work out how many students are left handed.
- (b) What percentage of the students are right handed?

Question 2: At a football match, 37% of the fans are children.
There are 12600 fans at the match.

Work out how many children went to the match?

Question 3: During the last ten years, Donald has played 1200 games of chess.
Donald has drawn 6% of the games.
He has lost 33% of the games.
How many games of chess has Donald won?

Question 4: Richard owns a coffee shop.
In one week, 68000 drinks are sold.
9% of the drinks sold are hot chocolates.
How many hot chocolates are sold?



Question 5: Which is larger 20% of 7 or 7% of 20?

Question 6: Maxwell is paid £460.
He spends 38% on his rent, 13% on his food and 20% on bills.
He saves the rest of the money.
How much money does Maxwell save?

Question 7: Hannah and Kate each have a salary of £36400.
Hannah is given a pay rise of 4%.
Kate is given £125 extra each month.
Who is given the best pay rise?

Question 8: There are 80 teachers in a school.
The headteacher says that exactly 89% of the teachers drive to work.
Explain why the headteacher is wrong.

Question 9: Dorothy organises a charity raffle.
She sells 800 tickets for £2 each.
4% of the tickets win a prize that costs £20.
65% of the profit goes to Charity A and the rest goes to Charity B.
How much money does Dorothy raise for Charity B?

Question 10: An adult ticket for the cinema costs £12.80
A child ticket is half the price of an adult ticket.
Mr and Mrs Henderson and their six children go to see a movie.
Mrs Henderson has a voucher for 22% off.
How much money does she save?



Week 3:

- **LI:** I can find the whole given a percentage

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.

(a) How many members are there in total?

(b) 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?

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?

Question 15: An oil tank has sprung a leak and loses 77.5% of its contents.



There is now 333 litres of oil in the oil tank.

How much oil was in the oil tank before the leak?

Question 16: Miss Jenkins buys a car costing £11895



This cost includes VAT at a rate of 20%

How much is the VAT?

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?

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.

Week 4:

- **L1:** I can increase and decrease by a percentage

Demonstration Video: <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 4

- | | | |
|----------------------------|---------------------------|-------------------------|
| (a) Decrease 90ml by 7.5% | (b) Increase £670 by 1.2% | (c) Increase 3 by 67.4% |
| (d) Increase 750cm by 0.8% | | |

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?

Question 4: A standard bag of flour contains 600g of flour.
A special edition bag contains 35% more flour.
How much flour is in the special edition bag?



Question 5: Richard owns a coffee shop.
In February, 4500 hot chocolates were sold.
The number of hot chocolates sold in March was 3% less.
How many hot chocolates are sold in March?



Question 6: Gabriel's salary is £24500.
Next year he is due to get a 9% increase.
What will his new salary be?



Question 7: Iris spends £40 a month on water.
By changing company, Iris can save 16%.
How much would Iris pay each month?



Question 8: An empty flowerpot has a mass of 800g.
The mass of the flowerpot increases to 4kg when filled with soil.



A different flowerpot is 25% lighter but holds 40% more soil.
Calculate the mass of this flowerpot when it is full of soil.

Question 9: Louis sees this special offer in a shop.



Louis buys both items.
How much does he pay?

Special Offer

iPad £489
Case £55

Buy both items and receive a 3% discount

Question 10: An adult ticket for the cinema costs £13.40
A child ticket is half the price of an adult ticket.
Mr and Mrs Henderson and their six children go to see a movie.
Mrs Henderson has a voucher for 18% off.
Work out how much Mrs Henderson pays for the tickets.



Question 11: Zara wants to buy 72 candles.
Each candle costs £4.80



There is a special offer

Work out the cost of buying 72 candles
using the special offer.

Special Offer

Candles £4.80 each

Buy 60 or more candles and
get 15% off the total cost.

Question 12: When a tennis ball is dropped, it bounces and then rises.
The ball rises to 80% of the height from which it is dropped.
The ball is dropped from a height of 4 metres.



- Calculate the height of the rise after the first bounce.
- Calculate the height of the rise after the second bounce.

The ball carries on bouncing, each time rising to 80% of the last rise.

- For how many bounces does the ball rise to a height greater than 10cm?

Week 4:

- **L1:** I can understand the difference between types of data

Demonstration Video: <https://corbettmaths.com/2019/01/04/primary-secondary-data/>
<https://corbettmaths.com/2013/04/20/quantitative-and-qualitative-data/>
<https://corbettmaths.com/2013/05/12/discrete-and-continuous-data-corbettmaths/>

Tasks:

Concept Corner

Fill in the spaces below using the words in the box:

discrete	frequency	continuous
	qualitative	primary
numerically		secondary

_____ data is information from original research. This can include interviews, experiments and questionnaires.

_____ data is information collected by another person or organisation. This could be a researcher, newspaper or website.

Quantitative data is information given _____, such as the number of goals scored.

_____ data is information given in words, such as the names of the players who scored.

Data are _____ if they can be counted, such as the number of sweets in packet.

_____ data cannot be counted, such as the mass of sweets in a packet.

_____ measures how often something occurs.

1. State whether each of the following are primary or secondary sources of data:

- | | |
|--------------------------------------|-------------------|
| a) A newspaper report | PRIMARY/SECONDARY |
| b) A science experiment | PRIMARY/SECONDARY |
| c) Interviewing people in the street | PRIMARY/SECONDARY |
| d) A website | PRIMARY/SECONDARY |
| e) A textbook | PRIMARY/SECONDARY |

2. State whether each of the following are qualitative or quantitative data:

- | | |
|---|--------------------------|
| a) Heights of students | QUALITATIVE/QUANTITATIVE |
| b) Colours of cars | QUALITATIVE/QUANTITATIVE |
| c) Names of favourite popstars | QUALITATIVE/QUANTITATIVE |
| d) Earnings of favourite popstars | QUALITATIVE/QUANTITATIVE |
| e) The frequency with which different types of soft drinks are chosen in a café | QUALITATIVE/QUANTITATIVE |

3. State whether each of the following measurements are discrete, continuous or neither:

- | | |
|----------------------------|-----------------------------|
| a) Mass of cars | DISCRETE/CONTINUOUS/NEITHER |
| b) Length of snakes | DISCRETE/CONTINUOUS/NEITHER |
| c) Number of pets | DISCRETE/CONTINUOUS/NEITHER |
| d) Time taken to run 100 m | DISCRETE/CONTINUOUS/NEITHER |
| e) Names of students | DISCRETE/CONTINUOUS/NEITHER |
| f) Number of books read | DISCRETE/CONTINUOUS/NEITHER |

State three more types of discrete and continuous data that is not already mentioned above

Week 4:

- **L1:** I can construct and interpret tally and two-way tables

Demonstration Videos: <https://corbettmaths.com/2013/05/07/tally-charts-corbettmaths/>
<https://corbettmaths.com/2012/08/10/two-way-tables/>

Tasks:

6. **Fill in the blanks** in the following two-way tables:

a) This table shows results of a survey about the number of pets children have:

	Pets	No pets	Total
Girls	10	25	
Boys	14	21	35
Total			70

- How many more boys have pets than girls?
- What fraction of boys have a pet?
- What fraction of all children don't have a pet?
- What percentage of children asked were girls?

b) This table shows results of a survey about the types of exercise people do:

	Running	Dancing	Swimming	Total
Men	24		23	70
Women	32	12		80
Total		35		

- How many more women go swimming than men?
- How many more people run than dance?
- What fraction of men go running?
- What fraction of people dance?
- What percentage of women go running?

50 children went to visit a university.

They went to Bath or Manchester.

12 girls and 11 boys went to Bath.

13 girls went to Manchester.

Complete the table.

	Bath	Manchester	Total
Boys			
Girls			
Total			

1. This tally chart shows how students travel to school.

Mode of transport	Tally	Frequency
Walk		
Bus		
Car		
Other		

Add the information below to the table and complete the frequency column.

Walk, bus, walk, bus, bus, car, train, cycle, bus, walk, walk, walk.

2. The 20 longest women's javelin throws, in metres, in 2016 were:

64.7, 64.8, 64.8, 64.8, 64.9, 65.0, 65.1, 65.1, 65.3, 65.3, 65.6, 65.6, 65.7, 66.1, 66.2, 66.2, 66.3, 66.4, 66.9, 67.1.

Put this data into the table below using appropriate groups. The first group has been done for you.

Length of throw (l metres)	Tally	Frequency
$64.5 \leq l < 65.0$		
$65.0 \leq l < 65.5$		

3. Kieran is sorting his data into groups.

Three of his measurements are: 27 kg, 30 kg and 32 kg.

Two of the groups he is using are:

25-30 kg

30-35 kg

Explain why these groups are not suitable.

Week 5:

- **L1:** I can construct and interpret pictograms

Demonstration Videos: <https://corbettmaths.com/2013/05/25/drawing-pictograms/>
<https://corbettmaths.com/2012/08/09/reading-pictograms/>

Tasks:

Question 1: James is revising for an exam.
 The pictogram shows how many hours he spent revising over four days.

- How many hours did James spend revising on Monday?
- How many hours did James spend revising on Wednesday?
- On which day did James spend 6 hours revising?
- How many hours did James spend revising in total?

Key ○ represents 2 hours

Monday	○ ○
Tuesday	○ ○ ○
Wednesday	○ ◐
Thursday	○ ○

Question 2: The pictogram shows how much money 4 friends raised for charity.

- Who raised the most money for charity?
- Who raised the least money for charity?
- How much money did Dylan raise?
- How much more did Ellie raise than Cara?
- How much more did Ellie raise than Dylan?
- How much money did the friends raise in total?

Ben	○ ○ ○ ○ ◐
Cara	○ ○
Dylan	○ ○ ◐
Ellie	○ ○ ○ ○ ○

Key ○ represents £10

Question 3: The pictogram shows the number of hours of sunshine in four cities for a day in May.

- Which city had the most sunshine?
- How many hours of sunshine did Swansea have?
- How many more hours of sunshine did Paris have than London?

Paris	○ ○ ◐
Cork	○ ○ ○
London	○ ◐
Swansea	○ ○ ◐

Key ○ represents 4 hours

The pictogram below shows the results of Bath City over a season.
 Each win is worth 3 points.
 Each draw is worth 1 point.
 Each lose is worth 0 points.
 How many points did Bath City earn over the season?

Win	○ ○ ○ ○ ○
Draw	○ ◐
Loss	○ ○ ○ ◐

Key ○ represents 2 matches

Question 4: Draw a pictogram for each of the following tables.
Use a suitable key.

(a)

Sport	Frequency
Badminton	20
Judo	15
Squash	25
Table Tennis	5

(b)

Day	Cars sold
Monday	6
Tuesday	8
Wednesday	3
Thursday	10
Friday	7

(c)

Position	Players
Goalkeepers	3
Defenders	18
Midfielders	16
Forwards	14

(d)

Shoe Size	Frequency
4	6
5	9
6	15
7	12
8	6

(e)

	Tweets
Hollie	50
Nick	120
Chris	70
Becky	80



Hannah has been asked to draw a pictogram for this information.

	Population
Milton	4,000
Leek	9,000
Redville	4,500
Newtown	5,000
Donhampton	2,000

Hannah has decided to use the key

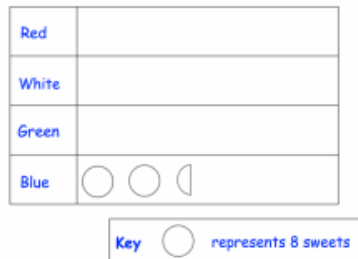
Key  represents 10 people

- Explain why her key is not suitable
- Suggest a more suitable key
- Draw a pictogram using your key from (b)

The pictogram shows some information about the colour of sweets in a bag.

There are twice as many red sweets than green sweets.
There are 30% more white sweets than blue sweets.
There are 6 more red sweets than white sweets.

Complete the pictogram.



Simon wanted to find his friends' favourite colours of football shirts. He gave them a choice of red, blue, white and other.

These are their answers, 5 red, 4 blue, 3 white and 4 other.

What do you think *other* means? _____

How many friends did he ask? _____

Simon then drew three diagrams to show what he had found.

Diagram 1

Red	5
Blue	4
White	3
Other	4

Diagram 2

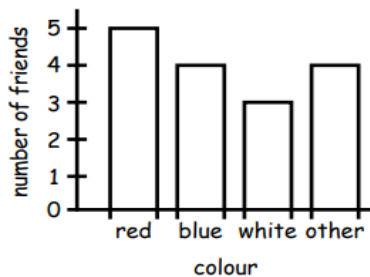


















Diagram 3

Red	    
Blue	   
White	  
Other	   

Which of the diagrams do you think was easiest to draw?

Diagram ____ Why? _____

Which of the diagrams do you think was hardest to draw?

Diagram ____ Why? _____

Which of the diagram best shows the information?

Diagram ____ Why? _____

Which of the diagrams is not a good way of showing the information?

Diagram ____ Why? _____

Week 5:

- LI: I can construct and interpret line graphs

Demonstration Video: <https://corbettmaths.com/2013/05/22/line-graphs/>

Tasks:

Question 1: Draw a line graph for each of the following tables

(a)

Year	Population
1990	40
1995	44
2000	50
2005	62
2010	88
2015	90

(b)

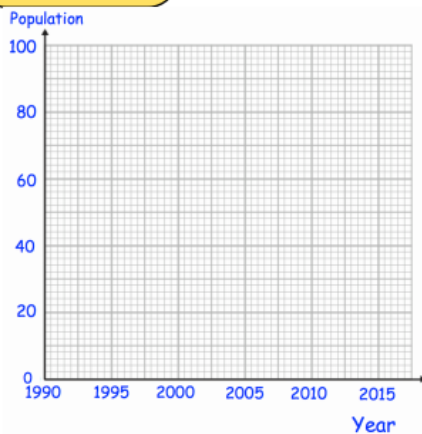
Time	Price
9am	30p
10am	24p
11am	25p
12 noon	27p
1pm	37p
2pm	38p

(c)

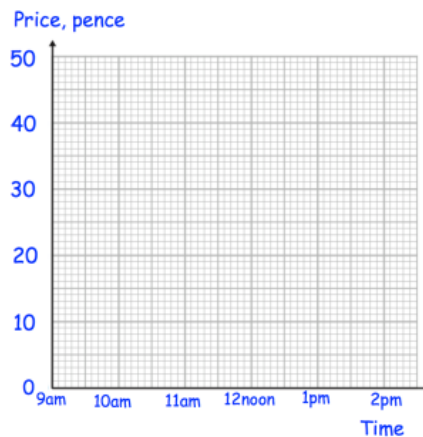
Month	Height, cm
1	3
2	5
3	10
4	20
5	35
6	36

Templates

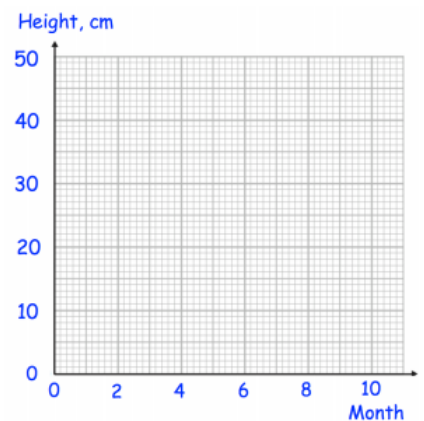
Question 1(a)



Question 1(b)

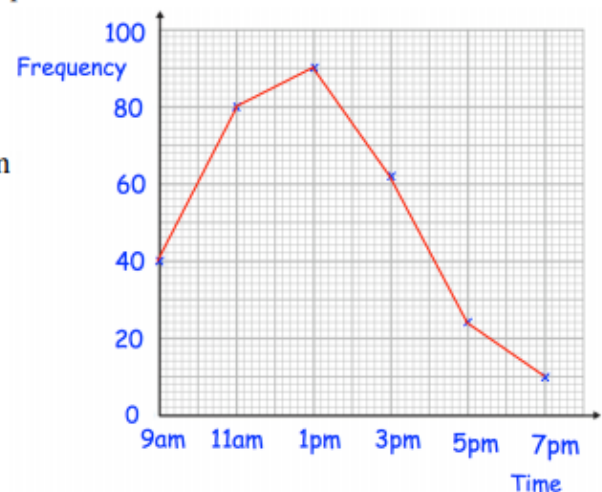


Question 1(c)



Question 2: Sally recorded the number of cars in a car park every two hours. She began at 9am and finished at 7pm. The line graph shows her results.

- When were the most cars in the car park?
- How many cars were in the car park at 11am
- At what time were there 24 cars in the car park?
- Estimate the number of cars in the car park at 10am.
- How many less cars were in the car park at 3pm than 1pm?

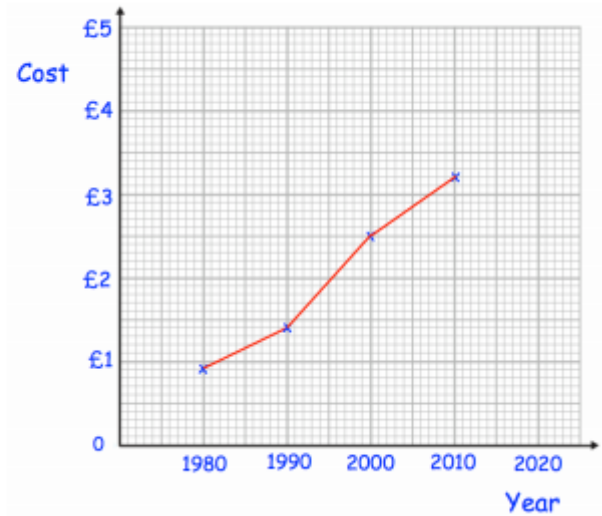


Question 3: The line graph below shows the cost of a coffee in a shop over 30 years.

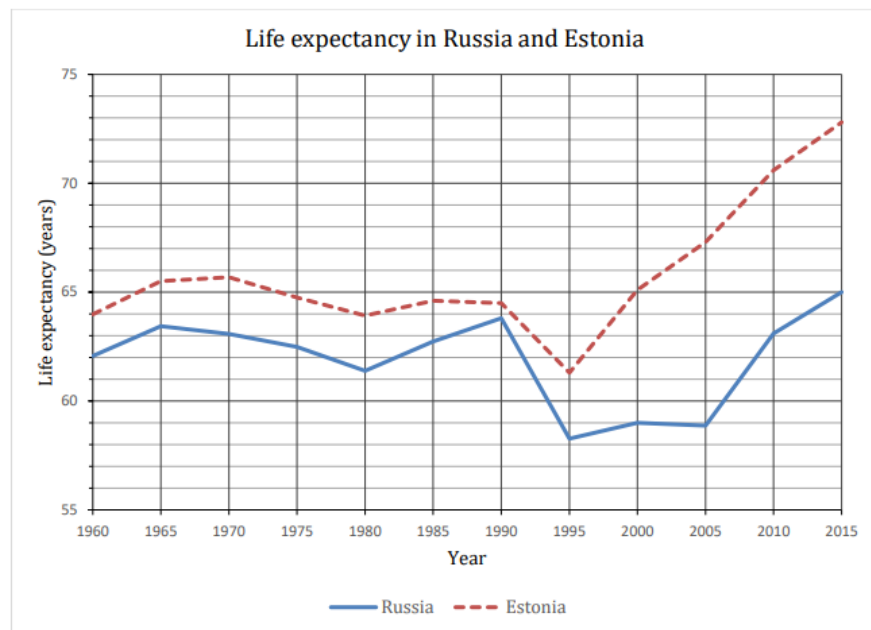
- (a) In which year was the price £2.50?
- (b) How much was the price of a coffee in 1990?
- (c) Estimate the price of a coffee in 2005.

Carlos says that the price of a coffee will be £3.60 by 2020.

- (d) Do you agree with Carlos?
Explain your answer.



The line graph below shows life expectancy in Russia and Estonia since 1960.



- a) What was the life expectancy in Russia in 2000?
- b) What was the life expectancy in Estonia in 1990?
- c) What was the greatest difference between life expectancy in Russia and Estonia?
When did this occur?

Week 5:

- **L1:** I can read and interpret pie charts

Demonstration Videos: <https://corbettmaths.com/2021/03/08/pie-charts-videos/>

Tasks:

Concept Corner

Fill in the spaces below using the words in the box:

A _____ can be used to show the _____ of different categories of data.

Each _____ represents a _____ of the whole.

There are _____ in a full turn, so a sector with an angle of 90° would represent _____ of the data.

1) Finding a value from the pie chart

This angle is 120°

As a fraction of the total this is $\frac{120}{360}$

$$\frac{120}{360} = \frac{1}{3}$$

So $\frac{1}{3}$ of the total amount is within this sector.

2) Calculating angles

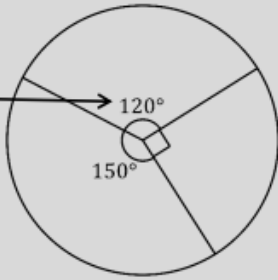
This chart shows the favourite colours of 36 people.

15 people chose blue.

This is $\frac{15}{36}$ of the total.

$$\frac{15}{36} \times 360^\circ = 150^\circ \text{ (giving the angle of the sector representing blue).}$$

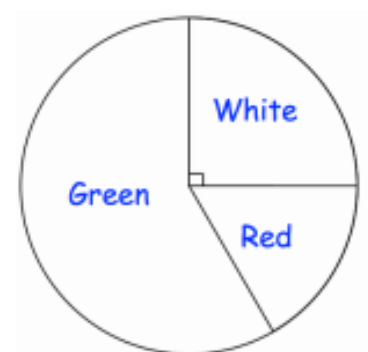
Proportion	Venn Diagram	360°	Fraction
Pie Chart	Segment	$\frac{1}{4}$	Sector



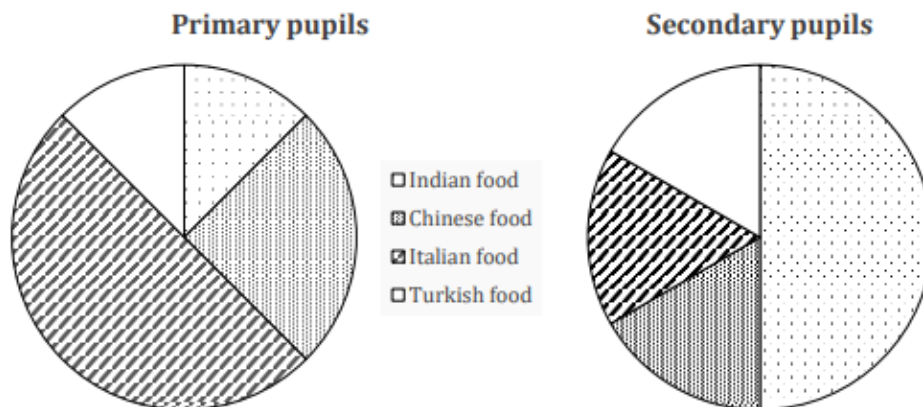
Red	12
Blue	15
Yellow	9
Total	36

Question 1: This pie chart shows the colour of sweets in a bag.

- What is the most common colour of sweet?
- What is the least common colour of sweet?
- What fraction of the sweets are white?

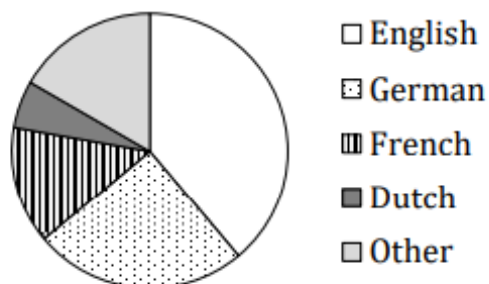


- 2 Tami visited a primary school and a secondary school to collect data on favourite food type. She asked 120 primary school pupils and 1080 secondary school pupils.



Decide if the following statements are true, false or can't tell:

- A higher proportion of primary school children than secondary school children chose Italian food.
 - Less than a quarter of secondary pupils chose Chinese food.
 - Older people prefer Indian food.
 - The proportion of primary pupils that chose Italian food is the same as the proportion of secondary pupils that chose Indian food.
- 3 Sam collected data on the first language of everyone on her coach tour and created the pie chart below:



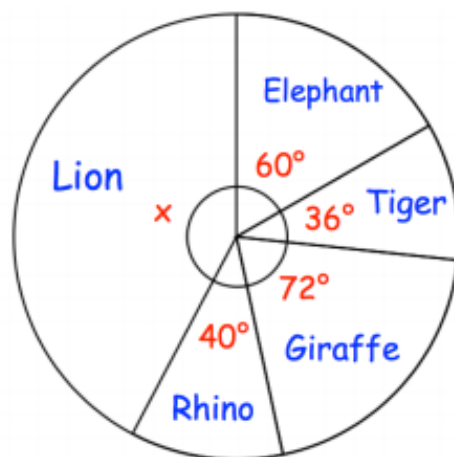
- What was the most common language?
- Estimate the angle of the German speaking sector?
- If there were 60 people on the coach tour use your answer to b) to estimate the number of passengers who spoke German.
- Estimate how many passengers answered "Other".

The pie chart shows information about the visitors to restaurants in a town.
375 people had fish and chips.
How many people had pizza?



Question 5: 90 students went on a school trip to Longleaf Safari Park.
They were asked their favourite animals.
The pie chart shows the results.

- What fraction of the students chose elephant?
- What fraction of the students chose tiger?
- What fraction of the students chose giraffe?
- What fraction of the students chose rhino?
- Find x
- How many students chose elephant?



- How many students chose tiger?
- How many students chose giraffe?
- How many students chose rhino?
- How many students chose lion?

Week 6:

- **L1:** I can draw pie charts from raw data

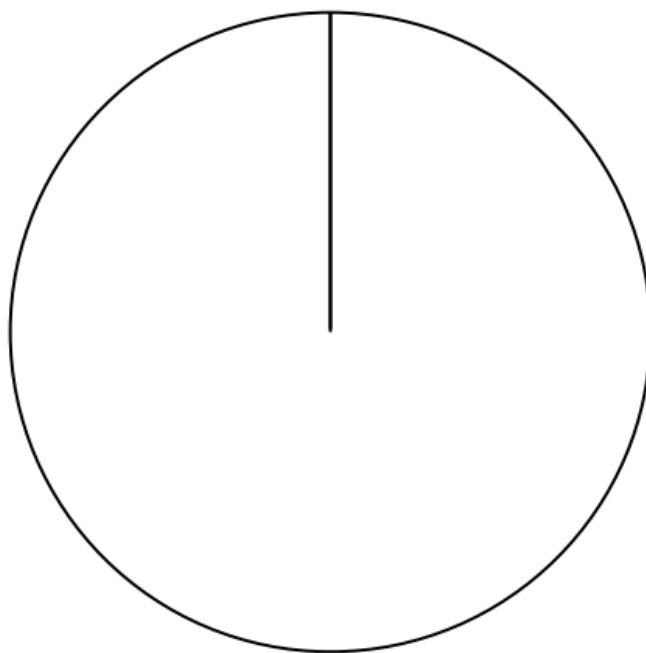
Demonstration Video: <https://corbettmaths.com/2021/03/08/pie-charts-videos/>

Tasks:

2. A PE teacher gave a group four options for their games activity. The table below shows their responses.

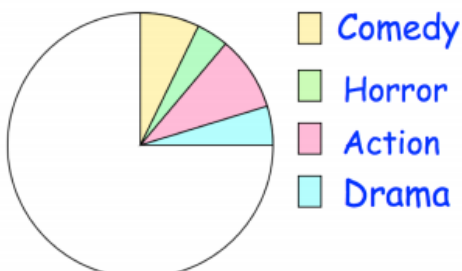
Complete the table and use it to draw a pie chart in the circle provided:

Activity	Frequency	Fraction	Angle
Dance	4		
Football	6		
Swimming	3		
Athletics	5		
Total			



Question 2: Bill has drawn a pie chart to show his friends' favourite genre of film.

Genre	Frequency
Comedy	26
Horror	14
Action	33
Drama	17



- (a) Can you explain to Bill what he has done wrong?
- (b) Draw a correct pie chart for Bill.

Draw the pie charts for these sets of data. (There are templates for you to use on the next page)

(a)

Method of Transport	Frequency
Car	8
Bus	11
Walk	12
Cycle	5

(b)

Rugby Team	Frequency
England	20
France	5
Ireland	15
Scotland	25
Wales	25

(c)

Colour	Frequency
Blue	25
Green	14
Red	21

(d)

Grade	Frequency
A	10
B	15
C	13
D	5
E	2

(e)

Make	Frequency
Ford	8
Mazda	14
Volkswagen	21
Fiat	20
Honda	9

(f)

Sport	Frequency
Cricket	7
Football	16
Gaelic Football	48
Hockey	33
Judo	4
Rugby	72

(g)

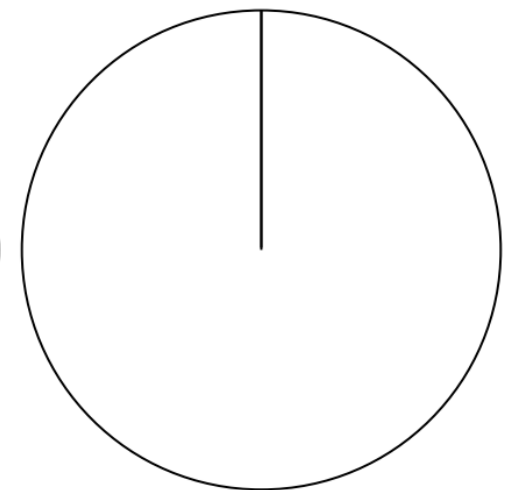
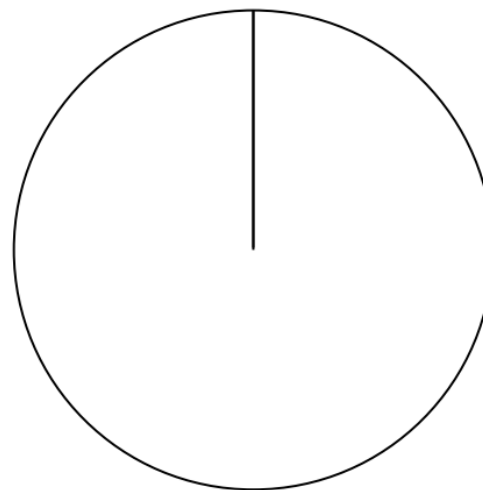
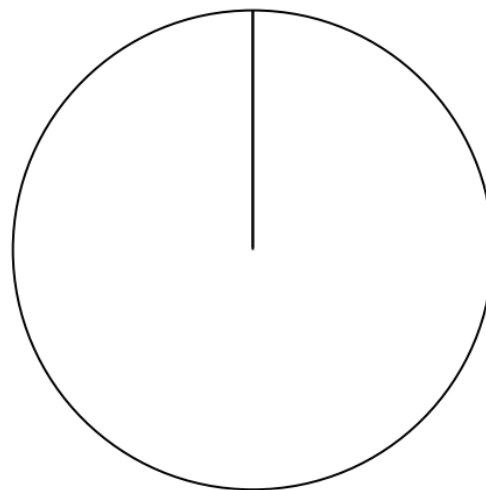
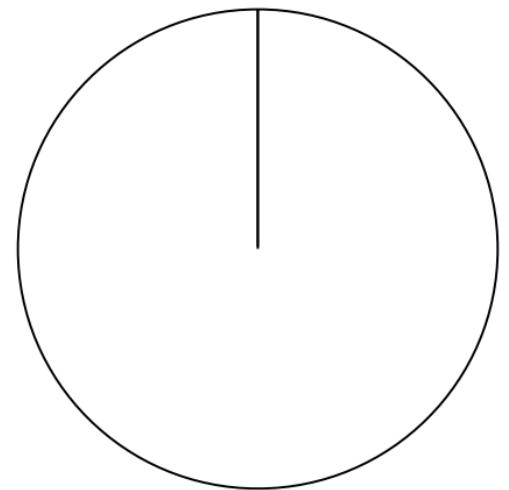
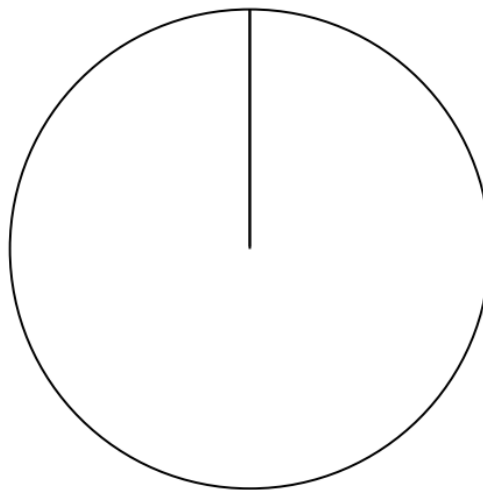
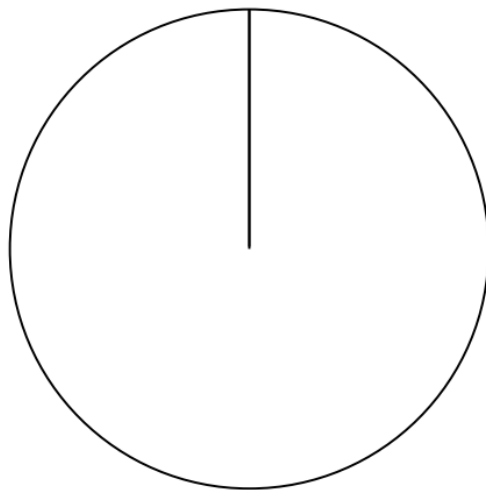
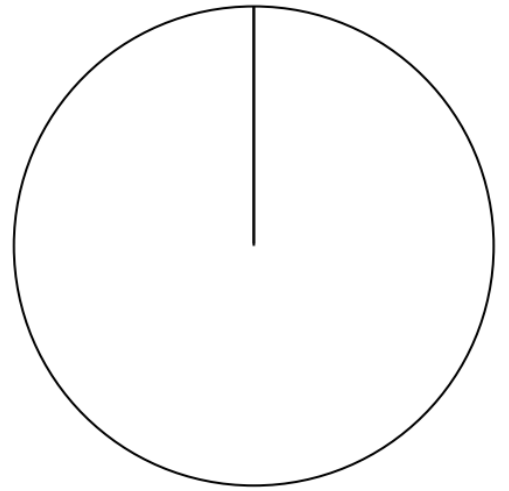
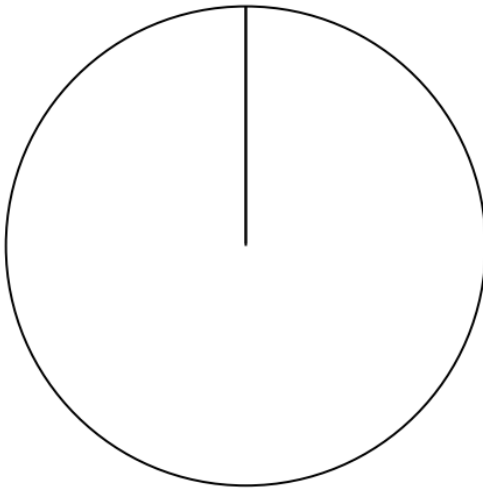
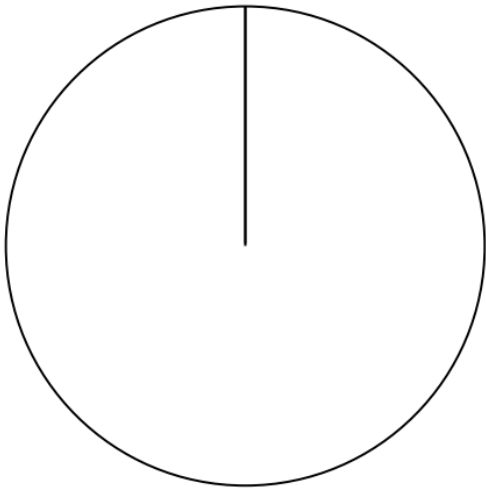
Language	Frequency
French	14
German	4
Polish	9
Spanish	3

(h)

Opinion	Frequency
Yes	3
No	11
Undecided	4

(i)

Drink	Frequency
Tea	410
Coffee	120
Fruit Juice	140
Water	50

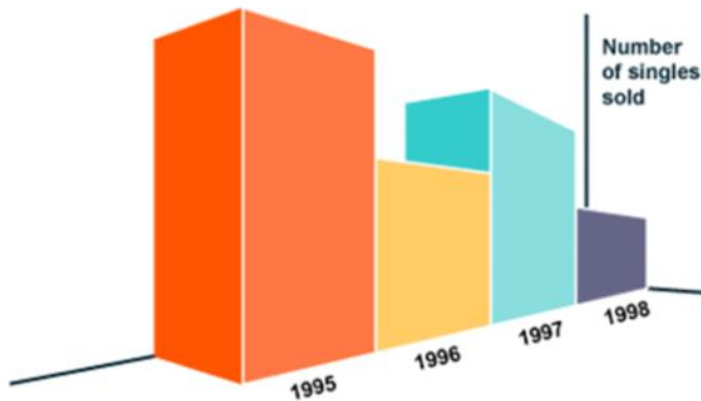


Week 6:

- **LI:** I can explore misleading graphical representations

Demonstration Video: <https://www.youtube.com/watch?v=E91bGT9BjYk>

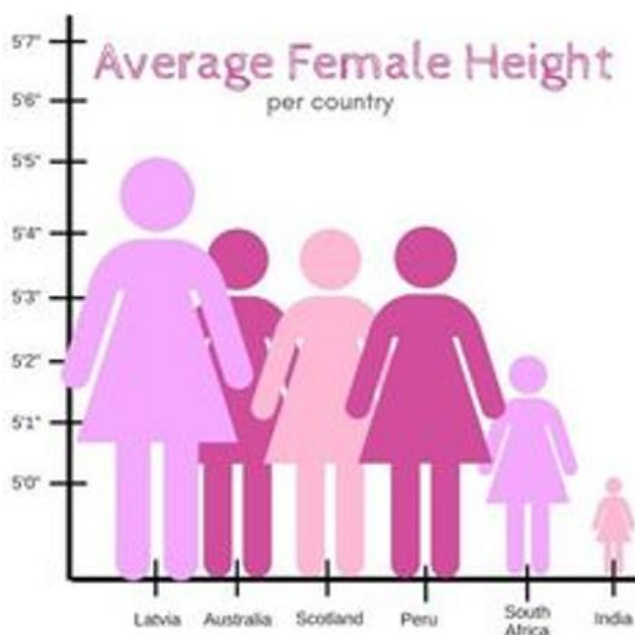
Tasks:



When was the greatest number of singles sold?

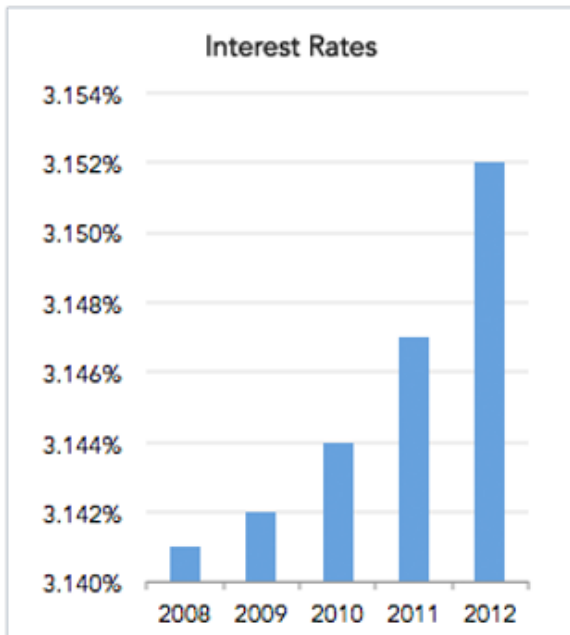
Which two years have the same sized bars?

List all the problems with this chart.



What do the different sizes of people mean?

List all the problems with this chart.



What is misleading about the axes?

Redraw this chart with the y axis starting at 0% and each step is a 0.5% increase



Maths Assessment Ladder		Y7 Unit 6 Summer 2
Attainment <u>Band:</u>	Unit 6 – Percentages and Pie Charts	
	Knowledge and Understanding	Skills
Yellow Plus	Understands how to calculate the original amount when given another percentage <u>13</u>	Knows how to find another percentage if given a specific percentage <u>12</u> Applies their knowledge of percentages to geometrical <u>problems</u> 11
Yellow	Identifies the whole pie chart as 100% and visually estimates sub-parts as a certain % out of the whole, using their angle facts <u>8b</u> Understands the proportionality of pie charts <u>9</u>	Uses visual representation and percentage facts to solve <u>problems</u> 8c Correctly interprets pie charts <u>9</u> Draws an accurate pie chart when given various percentages for the different categories <u>10</u>
Blue	Understands how to change a fraction to a percentage 4* Interprets common percentages as fractions [25% = $\frac{1}{4}$, ...] 5*	Writes a number as a percentage out of another <u>4a/b</u> Increases an amount by a given percentage <u>5</u> <u>Analyses</u> data represented on a composite bar chart accurately 7 Finds the area of a triangle 11*
Green	Compares quantities and deduces how this is the case using mathematical reasoning <u>2</u> Reads composite bar charts to estimate data collected <u>6</u> Understands the largest section in a chart represents the data that was most popular <u>8a</u>	Calculates a fraction of an amount 2* Converts between fractions, decimals and percentages <u>3</u> Reads scales accurately from graphs and charts 7*
White	Knows how to use percentage facts 1* Recognises how to order real numbers 3*	Finds 10% of an amount 1* Finds percentages of amounts that are multiples of 10 1/2