Sparx Maths

Year 7 Term 3

Revision Workbook

About this workbook

This workbook supports the revision of topics covered in **Year 7 Term 3** of the Sparx Maths Curriculum.

The workbook is divided into two sections:

- Fluency questions on each unit to practise the key concepts.
- Mixed questions on all topics to strengthen and deepen understanding.
  This section contains more challenging reasoning questions, cross-topic questions and problem solving questions.

If you use Sparx Maths you can find more questions and videos by searching for the following Sparx topic codes in Independent Learning.

Topic codes are also given with each question.

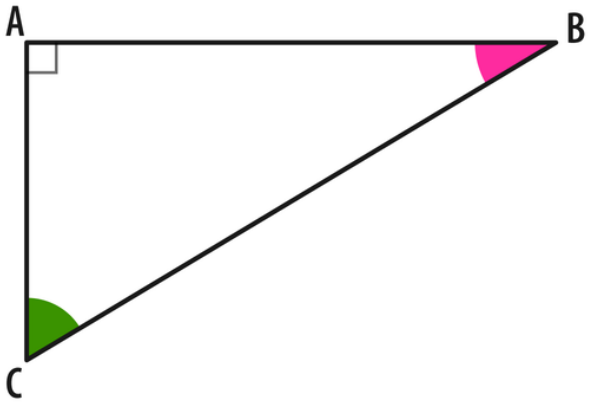
Units	Sparx topic codes				
Angles	M502	M541	M780	M331	
Finding unknown angles	M818	M163	M351		
Averages and range	M328	M934	M841	M940	
Tables and charts	M899	M597	M644	M460	M738
Collecting and presenting data	M945	M450	M127	M440	
Proportion word problems	M478				
Multiplying and dividing fractions	M216	M157	M110	M197	M265
Fractions of an amount	M695	M684			
Fractions, decimals and percentages	M958	M264	M553	M235	
Theoretical probability	M655	M941	M938	M755	M718

Calculator questions are marked with this symbol

Non-calculator questions are marked with this symbol

Q1

M502



What **type** of angle is

a) $A\widehat{B}C$?

Answer: .....

b) $B\widehat{C}A$?

Answer: .....

c) $C\widehat{A}B$?

Answer: .....

Q2

M502

How many degrees (°) are there in a

a) full turn?

Answer: ..... °

b) half turn?

Answer: ..... °

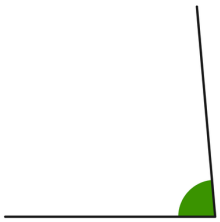
c) quarter turn?

Answer: ..... °

Q3
M541

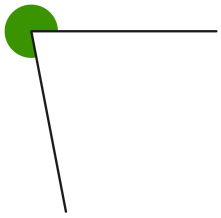
Which of the following is the best estimate for this angle?

$15°$ $85°$ $90°$ $105°$ $180°$



Answer: .....

Q4
M541

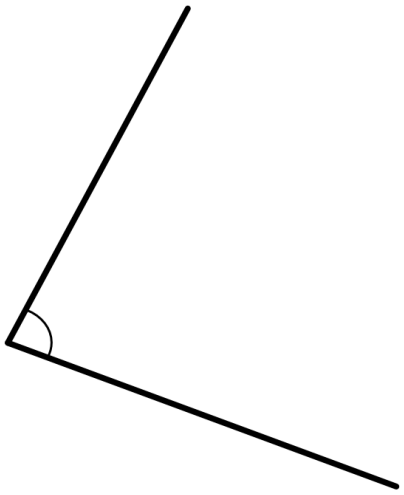


a) What type of angle is marked in the diagram?
b) Estimate the size of the marked angle.

Answer: a) ..... b) ..... °

Q5
M780

Use a protractor to measure the size of the angle below to the nearest degree.

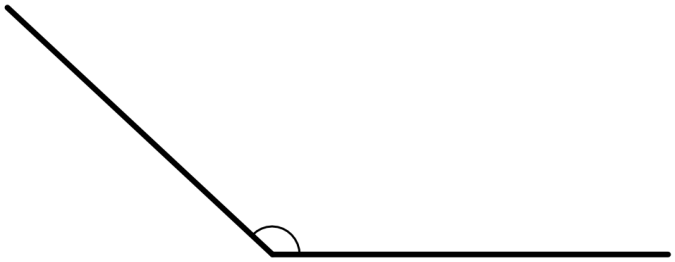


Answer: ..... °

Q6

M780

Use a protractor to measure the size of the angle below to the nearest degree.

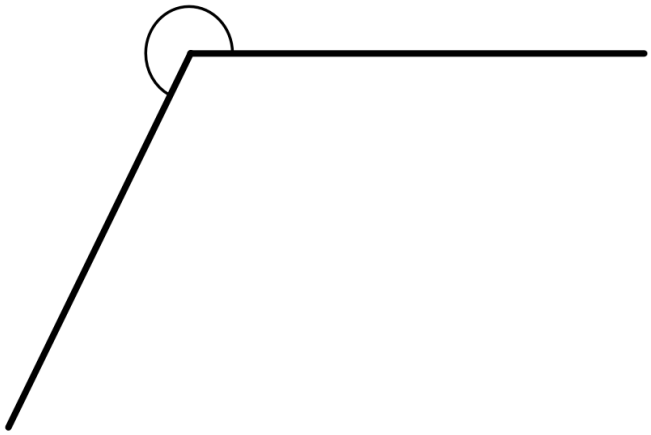


Answer: ..... °

Q7

M780

Use a protractor to work out the size of the angle below to the nearest degree.



Answer: ..... °

Q8

M331

In the space below, use a ruler and protractor to draw an angle of $70°$

Q9

M331

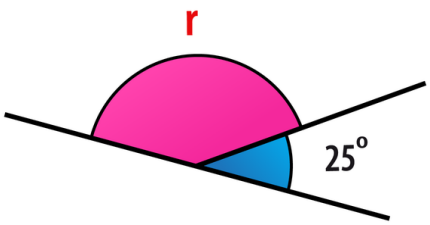
In the space below, use a ruler and protractor to draw an angle of $130°$

Finding unknown angles

Q1

M818

Work out the size of angle r.



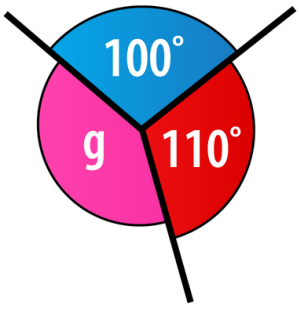
Not drawn accurately

Answer: ..... °

Q2

M818

What is the size of angle g?



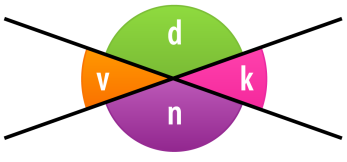
Not to scale

Answer: ..... °

Q3

M163

Write down the two pairs of vertically opposite angles in the diagram below.



Not drawn accurately

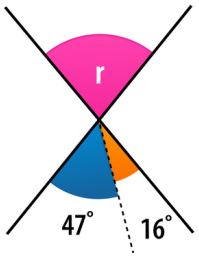
Answer: .....

Q4

M163

What is the size of angle r?

Give your answer in degrees $(^\circ)$.



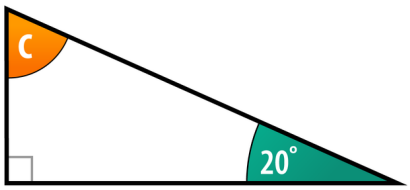
Not drawn accurately

Answer: ..... °

Q5

M351

Find angle c in the triangle below.



Not drawn accurately

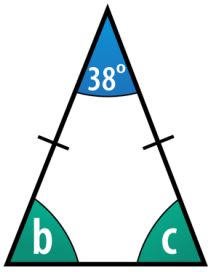
Answer: ..... °

Q6

M351

In this triangle, angles b and c are the same size.

What is the size of angle b?



Not drawn accurately

Answer: ..... °

Averages and range

Q1

M934
M841
M940

Find the mean, median and mode of the following numbers:

$6, \quad 1, \quad 7, \quad 4, \quad 7$

Answer: Mean: _____ Median: _____ Mode: _____

Q2

M841

What is the mode of the numbers below?

$17, \quad 12, \quad 14, \quad 14, \quad 12, \quad 16, \quad 12$

Answer: _____

Q3

M328
M934

Find the **range** and **median** of these numbers:

$4, \quad 9, \quad 3, \quad 2, \quad 8, \quad 9$

Answer: Range: _____ Median: _____

Q4
M940

The table below shows the ages of three friends. What is their mean age?

Person	Age
Ishaq	11
Isla	18
Elijah	13

Answer: .....

Q5
M328

What is the range of the numbers below?

-3.9 -6.0 4.6 7.2 -7.3 0.5

Answer: .....

Q6
M934

Work out the median of these numbers:

$8, \ -11, \ \ 9, \ \ 3, \ \ 11, \ -8$

Answer: .....

Q1

M899

How many coffees were sold on **Wednesday**?

Day	Number of coffees sold
Monday	17
Tuesday	3
Wednesday	9
Thursday	15

Answer: .....

Q2

M899

The table shows the shoe sizes of the students in Year 5.

Shoe size	3	4	5	6	7
Frequency	21	13	34	25	2

Work out the **total** number of students in Year 5.

Answer: .....

Q3

M899

The table shows how many medals some countries won in a sports contest.
Which of these countries won the **most** medals in total?

	Spain	Mexico	Australia
Bronze	6	18	12
Silver	4	10	15
Gold	18	2	7

Answer: .....

Q4

M597
M945

A group of people were asked how many TVs they each have at home.
Their responses are given below.
Complete the table.

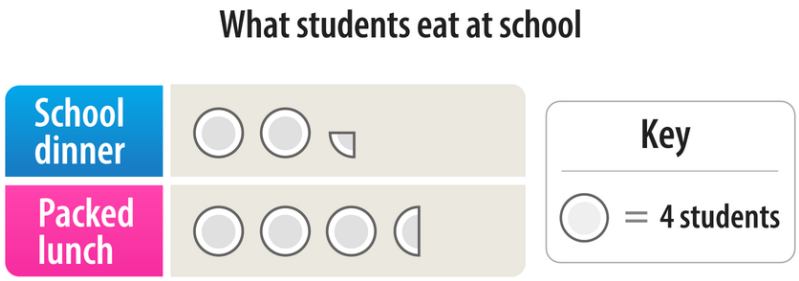
Responses					
1	1	0	1	1	0
3	1	2	3	1	1

Number of TVs	Tally	Frequency
0		
1		
2		
3		

Q5

M644

How many students eat a **school dinner**?



Answer: .....

Q6

M644

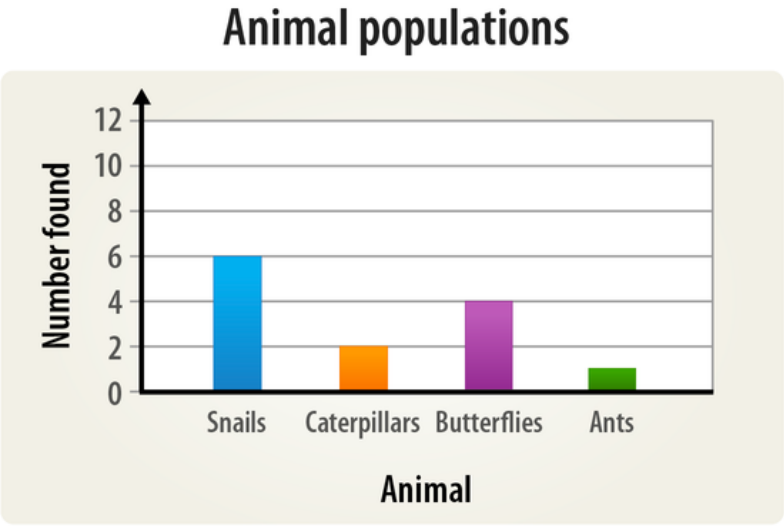
40 people were asked what their favourite fruit is.
Draw the symbols to complete the apple section of the pictogram.

Q7
M738

Kyle investigated the number of animals in his garden and recorded his findings in this bar chart.

a) What was the **modal** animal?

b) How many of that animal did he find?



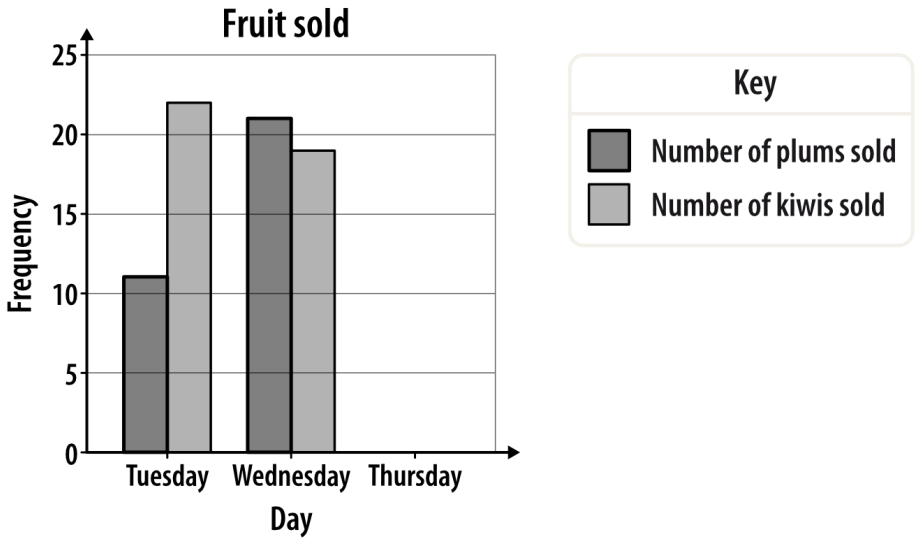
Answer: a) _____ b) _____

Q8
M460

The data below is plotted on a dual bar chart, but two bars are missing.

Day	Plums Sold	Kiwis Sold
Tuesday	11	22
Wednesday	21	19
Thursday	14	20

Complete the dual bar chart.



Q1
M127

Theo asked his friends what their favourite meal was and recorded the results in the frequency table below. What was the **modal** response?

Meal	Frequency
Pizza	14
Stew	10
Curry	16
Salad	14
Fish pie	12

Answer: .....

Q2
M127

Myles asked some of his classmates how many musical instruments they played and recorded their responses in the table below.
What is the **median** number of musical instruments played?

Number of instruments	Frequency
0	4
1	2
2	2
3	3

Answer: .....

Q3
M127

Lenny asked a group of people how many newspapers they bought in one week. The results from his survey are shown below.
What is the **mean** number of newspapers each person bought?

Newspapers bought	Frequency
0	9
1	0
2	1
3	4

Answer: .....

Q4
M440

The results that Charles, Isabella and Naomi achieved in four tests are shown in the table below.
They want to see who has the **most consistent** results.

Charles	46, 43, 39, 57
Isabella	69, 64, 62, 71
Naomi	94, 80, 61, 72

a) Which of the **mean**, **median**, **mode** or **range** should they calculate to help them decide?

Answer: .....

b) Who achieved the most consistent results?

Answer: .....

Proportion word problems

Q1
M478

1 minibus can seat 14 passengers.
How many passengers can be seated on 5 identical minibuses?

Answer: .....

Q2
M478

7 identical sweets cost 28p.
How much does 1 of the sweets cost?

Answer: ..... p

Q3
M478

6 friends each bought one ticket to go to the theatre.
Each ticket cost the same amount and the total cost was $£102$.
How much did each ticket cost?
Give your answer in pounds $(£)$.

Answer: £ .....

Proportion word problems

Q4
M478

A recipe for 3 people uses $150\,\text{g}$ of flour.
How much flour is needed to make the same recipe for 6 people?

Answer: _____ g

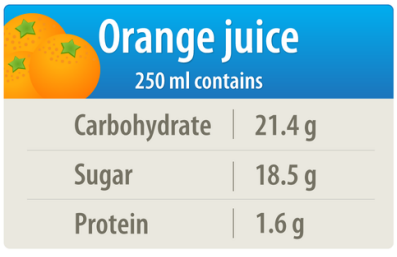
Q5
M478

It costs $£94.50$ to buy 7 blouses. How much does it cost to buy 10 blouses? Give your answer in pounds $(£)$.

Answer: $£$ _____

Q6
M478

A carton of orange juice displays the nutritional information shown below.
How many grams of **sugar** are there in a $200\,\text{ml}$ glass of juice?



Answer: _____ g

Multiplying and dividing fractions

Q1

M157

What is $2 \times \frac{2}{7}$?
Give your answer in its lowest terms.

Answer: .....

Q2

M157

Work out $\frac{2}{5} \times \frac{6}{7}$
Give your answer as a fraction in its simplest form.

Answer: .....

Q3

M157

Work out $\frac{3}{8} \times \frac{7}{15}$
Give your answer as a fraction in its lowest terms.

Answer: .....

Q4

M216

Work out the reciprocal of

a) 7

b) $\frac{7}{6}$

c) $\frac{1}{6}$

Give each of your answers as an integer or as a fraction in its simplest form.

Answer: a) _____ b) _____ c) _____

Q5

M110

Work out $3 \div \frac{13}{4}$

Give your answer as a fraction in its simplest form.

Answer: _____

Q6

M110

Work out $\frac{2}{7} \div \frac{3}{5}$

Give your answer as a fraction in its simplest form.

Answer: _____

Q7

M110

Work out $\frac{7}{12} \div \frac{2}{9}$

Give your answer as a fraction in its simplest form.

Answer: .....

Q8

M197

Calculate the value of $1\frac{3}{7} \times \frac{2}{5}$

Give your answer as a fraction in its simplest form.

Answer: .....

Q9

M265

Work out $\frac{1}{3} \div 2\frac{2}{5}$

Give your answer as a fraction in its simplest form.

Answer: .....

Fractions of an amount

Q1
M695

What is $\frac{1}{2}$ of 28?

Answer: .....

Q2
M695

What is $\frac{1}{5}$ of $£20$?

Answer: $£$ .....

Q3
M695

Find $\frac{3}{5}$ of 20

Answer: .....

Q4
M695

Alice thinks of a number.
$\frac{1}{6}$ of her number is 5.
What is Alice's number?

Answer: .....

Q5

M695

The original price of a board game was £50.
In a sale it was **reduced** by $\frac{1}{10}$ of its original price.

a) Work out how much the price was reduced by.

Answer: £ .....

b) Work out the sale price of the board game.

Answer: £ .....

Q6

M684

Work out $\frac{4}{5}$ of 801
Give your answer as a decimal.

Answer: .....

Q1
M958

Convert the following fractions to decimals:

a) $\frac{38}{100}$

Answer: .....

b) $\frac{3}{10}$

Answer: .....

Q2
M958

Convert the following decimals to fractions in their simplest form:

a) 0.77

Answer: .....

b) 0.7

Answer: .....

Q3
M264

What is $\frac{27}{100}$ written as a percentage?

Answer: ..... %

Q4
M264

What is $\frac{9}{100}$ written as a percentage?

Answer: ..... %

Q5

M264

Write 0.3 as a percentage.

Answer: ..... %

Q6

M264

What **percentage** of this cake is **remaining**?

Answer: ..... %

Q7

M264

What is 70% as a fraction?
Give your answer in its simplest form.

Answer: .....

Q8

M264

Write $\frac{1}{20}$ as a percentage.

Answer: ..... %

Q9

M553

Write these values in ascending order (smallest to largest):

$\frac{27}{100}, \quad 0.21, \quad \frac{3}{10}$

Answer: .....

Q10

M553

Write the values below in ascending order.

$6\%, \quad \frac{23}{50}, \quad 0.4$

Answer: .....

Q11

M235

A sports club has 60 members.

24 of the members are boys and 36 of the members are girls.

What percentage of the members are boys?

Answer: ..... %

Q12

M264

Sara buys a bag of sweets and $\frac{7}{28}$ of the sweets in the bag are red. What percentage of the sweets are red?

Answer: .....

Q13

M264

3 of the 29 students in a class wear glasses.
What percentage of the students in the class wear glasses?
Give your answer to 1 d.p.

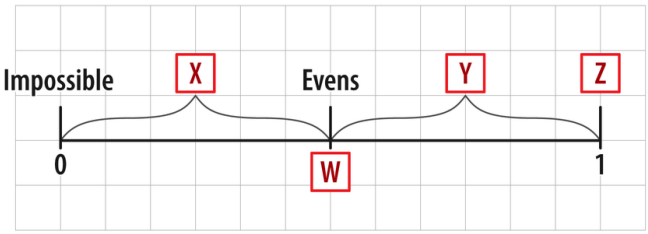
Answer: ..... %

Theoretical probability

Q1

M655

A probability scale is shown below.



a) Which of the following words should replace each of X, Y and Z?

Likely, Certain, Impossible, Unlikely, Evens

Answer: X: ..... Y: ..... Z: .....

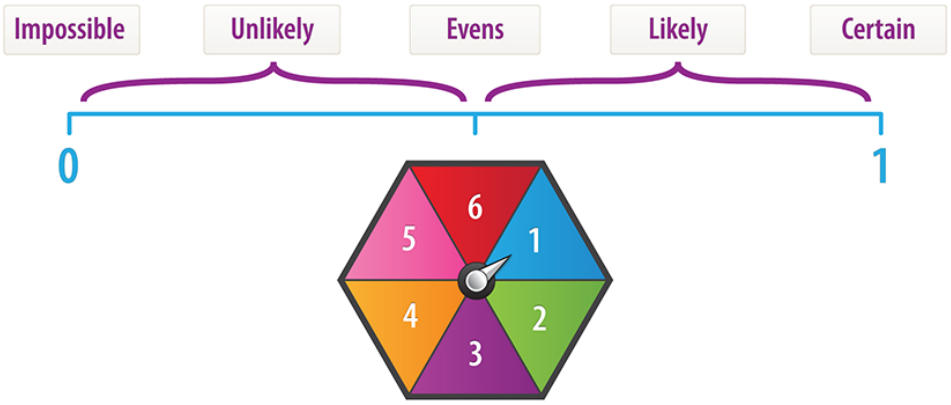
b) What value should replace W?

Answer: W: .....

Q2

M655

Choose the correct word to describe the probability of this fair spinner landing on a number greater than 2.



Answer: .....

Q3
M941

The arrow on this fair spinner is spun. What is the probability that it stops on a shaded section? Give your answer as a fraction in its simplest form.

Answer: .....

Q4
M938

There are 10 marbles in a bag. 3 of them are green.
What is the probability of picking a green marble at random from this bag?
Write your answer as

a) a fraction

Answer: .....

b) a decimal

Answer: .....

Q5
M755

Nyla owns 13 films.
9 of her films are romance films.
She chooses one of her films at random.
What is the probability that it is **not** a romance film?
Give your answer as a fraction in its simplest form.

Answer: .....

Q6
M755

A bag contains 4 blue, 5 green and 2 purple counters.
One counter is picked at random.
What is the probability that the counter is green **or** purple?
Give your answer as a fraction.

Answer: .....

Q7
M755

A company has 25 employees. Each person travels to work using only one type of transport.
The probability that an employee chosen at random cycles to work is $\frac{6}{25}$.
The probability that they walk to work is $\frac{12}{25}$.
What is the probability that an employee chosen at random **either** cycles **or** walks to work?
Give your answer as a fraction in its simplest form.

Answer: .....

Q8
M755

The table below shows the probability that a random letter on a page in a book will be a vowel (A, E, I, O or U). What is the probability that a random letter is not a vowel? Give your answer as a decimal.

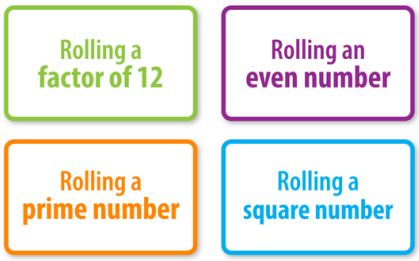
Letter	Probability
A	0.15
E	0.18
I	0.11
O	0.09
U	0.06

Answer: .....

Q9

M755

Which **two** of the events below are **mutually exclusive** if a fair six-sided dice is rolled once?



Q10

M718

The diagram below shows all the possible outcomes of flipping a fair coin and spinning a fair spinner with three equal sections.
What is the probability of the outcome being tails and 3?
Give your answer as a fraction in its simplest form.

		Spinner		
		1	2	3
Coin	H	H, 1	H, 2	H, 3
	T	T, 1	T, 2	T, 3

Answer: .....

Q11

M718

Maisy rolls two fair 6-sided dice. She multiplies together the two numbers rolled on the dice to get a score.
What is the probability that Maisy's score is **greater than** 19?
Give your answer as a fraction in its simplest form.

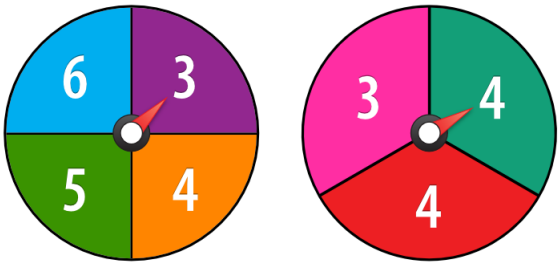
×	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

Answer: .....

Q12

M718

The diagram shows two fair spinners.



a) Draw a sample space diagram to show all the possible outcomes of spinning both of the spinners.

b) What is the probability that at least one spinner lands on 4?
Give your answer as a fraction in its simplest form.

Answer: .....

Q1
M264

Finley thinks of a decimal number.
It is larger than $\frac{27}{100}$ but smaller than 35%. The number only has **one** decimal place.
What number is he thinking of?

Answer: .....

Q2
M655

Elisha has a bag containing **five red balls** and **one white ball**.
Elisha is going to pick a ball at random.
How many **more white** balls should Elisha put in the bag so that it is **just as likely** that she will pick a red ball as a white ball?

Answer: .....

Q3
M478

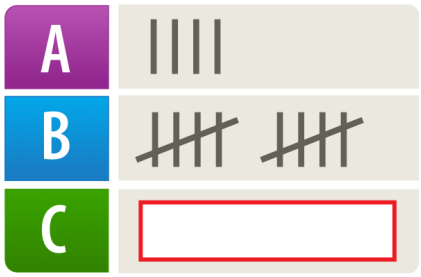
Finn is stacking identical cube-shaped boxes. He stacks 7 boxes to make a tower that is $112\,\text{cm}$ tall. He adds 1 more box to the tower.
How tall is the tower now?

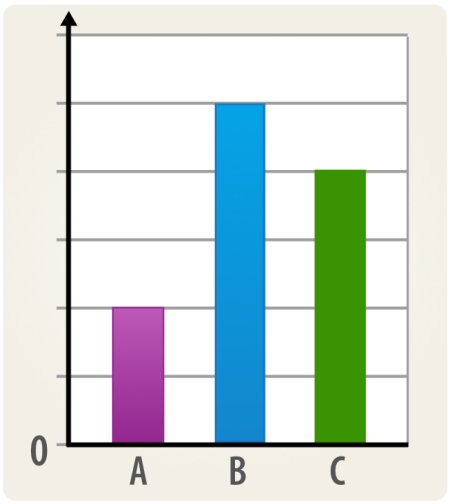
Answer: ..... cm

Q4

M738
M597

The tally chart and the bar chart below show the same information.
What tally should go in the empty box?





Q5

M958

Work out $0.43 + \frac{17}{100} + \frac{3}{10}$

Give your answer as a decimal.

Answer: .....

Q6

M328
M841
M440

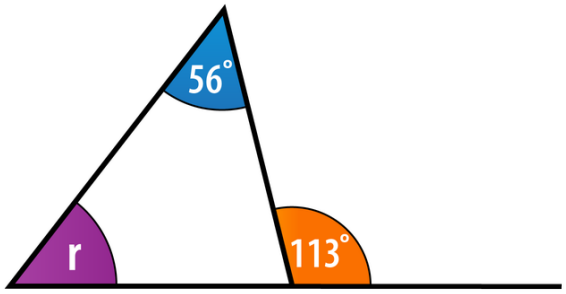
Victoria calculates the range of her number cards and finds that it is the same as the mode.
What must the value of the missing card be?

Answer: .....

Q7

M818
M351

Find the size of angle r.



Not drawn accurately

Answer: ..... °

Q8

M755
M264

A spinner has four sections labelled A, B, C and D. The probabilities of it landing on sections A, B and C are shown in the table below.

What is the probability, as a percentage, of the spinner landing on section D?

Section	Probability
A	$\frac{1}{20}$
B	0.23
C	37%
D	?

Answer: ..... %

Q9

M934

If we add the number 18 into the following list as a sixth value, then how much does the median increase by?

$10, \quad 23, \quad 6, \quad 3, \quad 19$

Answer: .....

Q10

M695

Blake, Ethan and Sienna own a total of 77 books between them.
Blake owns $\frac{3}{11}$ of the books and Ethan owns $\frac{4}{7}$ of the books.
How many books does Sienna own?

Answer: .....

Q11

M197
M288

Work out $-15 \times 2\frac{4}{5}$
Give your answer as an integer or as a fraction in its lowest terms.

Answer: .....

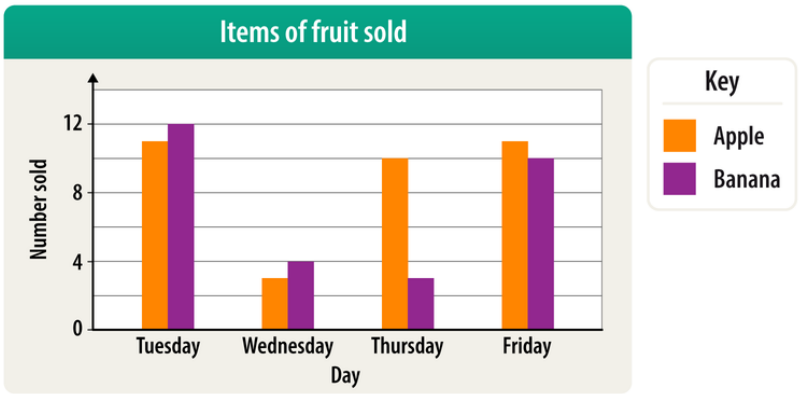
Q12
M478

Look at the poster below showing the price of pencils in a stationery shop.
Evie wants to buy exactly 64 pencils. What is the lowest amount she can pay?
Give your answer in pounds $(£)$.

Answer: $£$ .....

Q13
M738

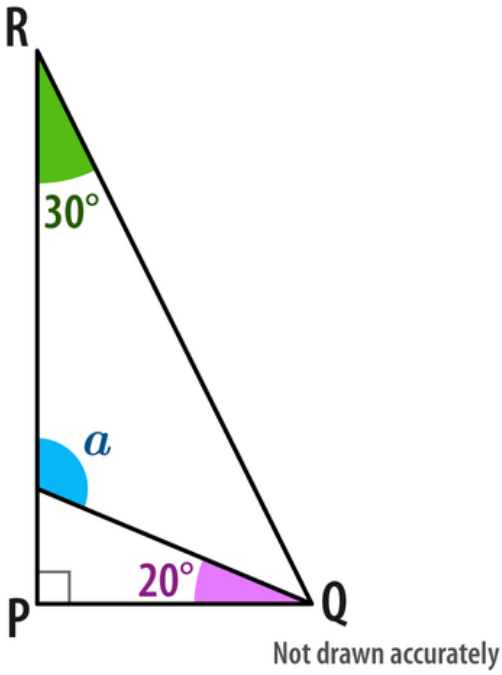
A shop sells items of fruit for 30p each. This bar chart shows how many apples and bananas the shop sold on four days last week.
How much more money did the shop take from selling bananas on Friday than from selling bananas on Wednesday?
Give your answer in pence (p).



Answer: ..... p

Q14
M351

The diagram shows triangle PQR.
Work out the size of angle a.



Answer: ..... °

Q15
M157

James writes down the number 60. He wants to multiply it by one of the fractions below to get the biggest answer possible.
Which of the three fractions below should he use?
What is the answer to this multiplication?

$$60 \times \square = \square$$

$\frac{3}{5}$ $\frac{1}{2}$ $\frac{7}{10}$

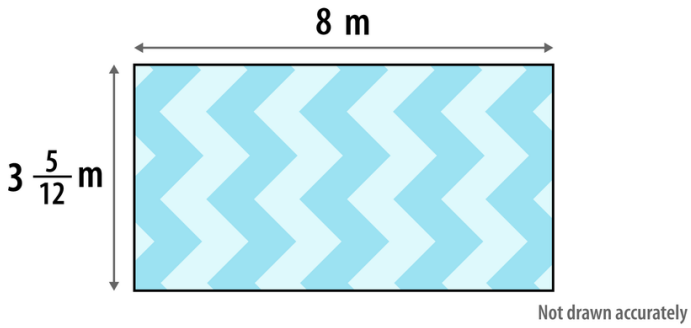
Q16
M264

11 of the 40 trees in a park are ash trees.
What percentage of the trees in the park are **not** ash trees?
Give your answer to 1 d.p.

Answer: ..... %

Q17
M197

Bridget has designed a rectangular rug, which is shown below.
What is the total area, in m^2, of this rug?
Give your answer as a whole number or as a fraction in its simplest form.



Not drawn accurately

Answer: ..... m^2

Q18
M264
M934

What is the median value in this list?
$\frac{6}{10}, \quad \frac{1}{2}, \quad 0.9, \quad 75\%, \quad 0.03$

Answer: .....

Q19

M328
M934
M940
M440

The **minimum** of the set of number cards below is 4
The **range** of the cards is 8
The **mean** of the cards is 7
Find the values of the number cards.

Answer: .....

Q20

M110

Calculate the number that should go in the box below.

$$6 \div \frac{15}{\square} = \frac{18}{5}$$

Q21

M899
M939

The table below shows how many brothers and sisters some students in Year 9 have.
What **fraction** of the students have more brothers than sisters?
Give your answer in its lowest terms.

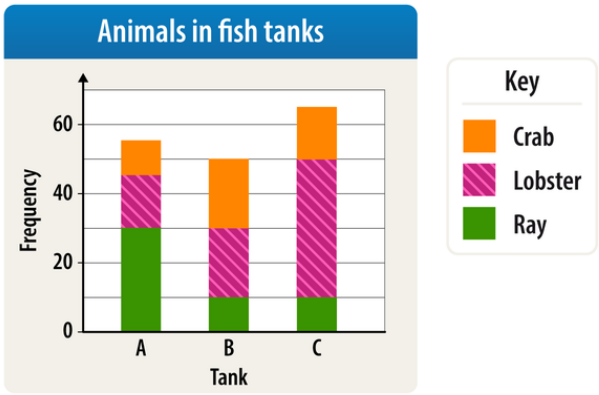
Number of sisters \ Number of brothers	0	1	2
0	8	13	34
1	12	29	6
2	24	2	9

Answer: .....

Q22

M738
M755

A marine biologist has three fish tanks. The tanks contain only crabs, lobsters and rays.
The bar chart below shows the numbers of each type of animal in each tank.
If one of the animals in tank B is chosen at random, what is the probability that it is either a crab or a lobster?
Give your answer as a fraction in its simplest form.



Answer: _____

Q23

M478

On the speedometer of a car there are $90°$ between $10\,\text{mph}$ and $60\,\text{mph}$.
How many degrees $(°)$ are there between $20\,\text{mph}$ and $50\,\text{mph}$?

Not drawn accurately

Answer: _____ °

Q24
M934

The median of the following list is 20. Find the value of t.

$2t, \quad 4t, \quad 6t, \quad 9t$

Answer: .....

Q25
M695

Martha spent $\frac{1}{6}$ of her pocket money on magazines.
She then spent $\frac{4}{5}$ of what she had left on a present.
After that, she had $£3$ left.
How much pocket money did she have to start with?
Give your answer in pounds $(£)$.

Answer: $£$ .....

Q26
M940
M440

An animal shelter is looking after 40 foxes and 10 otters.
The mean mass of the foxes is $5.0\,\text{kg}$.
The mean mass of the otters is $8.0\,\text{kg}$.
What is the mean mass of all the foxes and otters in the shelter?
Give your answer in kilograms (kg) as a decimal.

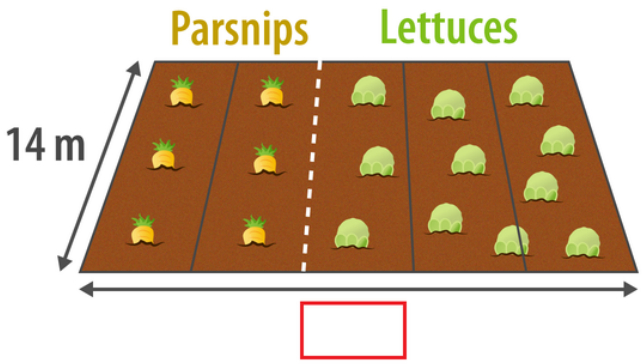
Answer: ..... kg

Q27

M695

Farmer Freya has a rectangular field. $\frac{2}{5}$ of the field is planted with parsnips and the rest is for lettuces. The width of her field is $14\,\text{m}$.

What is the length of her field?



Area of parsnip section = 168 m²

Not to scale

Q28

M899

Members of a sports club are junior, adult or senior.

80 of these members were asked whether they prefer tea, coffee or hot chocolate.

25 members are senior, of which 13 prefer coffee.

10 juniors prefer tea.

There are no adult members who prefer hot chocolate.

2 out of the 18 juniors prefer coffee.

4 out of the 28 members who prefer tea are seniors.

What fraction of members in the club prefer hot chocolate?

Give your answer as a fraction in its simplest form.

Answer: .....

Answers

Angles

Q1 a) Acute

b) Acute

c) Right

Q2 a) $360\ ^\circ$

b) $180\ ^\circ$

c) $90\ ^\circ$

Q3 85°

Q4 a) Reflex

b) $280\ ^\circ$

Q5 $82\ ^\circ$

Q6 $137\ ^\circ$

Q7 $244\ ^\circ$

Q8 Correctly drawn angle

Q9 Correctly drawn angle

Finding unknown angles

Q1 $155\ ^\circ$

Q2 $150\ ^\circ$

Q3 d and n, v and k

Q4 $63\ ^\circ$

Q5 $70\ ^\circ$

Q6 $71\ ^\circ$

Averages and range

Q1 Mean: 5

Median: 6

Mode: 7

Q2 12

Q3 Range: 7

Median: 6

Q4 14

Q5 14.5

Q6 5.5

Tables and charts

Q1 9

Q2 95

Q3 Australia

Q4

Number of TVs	Tally	Frequency
0	II	2
1	𝍸 II	7
2	I	1
3	II	2

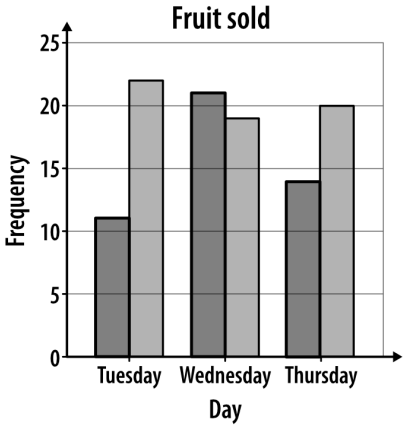
Q5 9

Q6

Q7 a) Snails

b) 6

Q8



Answers

Collecting and presenting data

Q1 Curry

Q2 1

Q3 1

Q4 a) Range

b) Isabella was most consistent

Proportion word problems

Q1 70

Q2 4 p

Q3 £ 17

Q4 300 g

Q5 £ 135

Q6 14.8 g

Multiplying and dividing fractions

Q1 $\frac{4}{7}$

Q2 $\frac{12}{35}$

Q3 $\frac{7}{40}$

Q4 a) $\frac{1}{7}$

b) $\frac{6}{7}$

c) 6

Q5 $\frac{12}{13}$

Q6 $\frac{10}{21}$

Q7 $\frac{21}{8}$

Q8 $\frac{4}{7}$

Q9 $\frac{5}{36}$

Answers

Fractions of an amount

Q1 14

Q2 £ 4

Q3 12

Q4 30

Q5 a) £ 5

b) £ 45

Q6 640.8

Fractions, decimals and percentages

Q1 a) 0.38

b) 0.3

Q2 a) $\frac{77}{100}$

b) $\frac{7}{10}$

Q3 27 %

Q4 9 %

Q5 30 %

Q6 90 %

Q7 $\frac{7}{10}$

Q8 5 %

Q9 0.21 -> $\frac{27}{100}$ -> $\frac{3}{10}$

Q10 6% -> 0.4 -> $\frac{23}{50}$

Q11 40 %

Q12 25

Q13 10.3 %

Theoretical probability

Q1 a) X: Unlikely

Y: Likely

Z: Certain

b) W: $\frac{1}{2}$

Q2 Likely

Q3 $\frac{2}{5}$

Q4 a) $\frac{3}{10}$

b) 0.3

Q5 $\frac{4}{13}$

Q6 $\frac{7}{11}$

Q7 $\frac{18}{25}$

Q8 0.41

Q9 Rolling a **square number** Rolling a **prime number**

Q10 $\frac{1}{6}$

Q11 $\frac{2}{9}$

Q12 a)

	3	4	4
3	3,3	3,4	3,4
4	4,3	4,4	4,4
5	5,3	5,4	5,4
6	6,3	6,4	6,4

b) $\frac{3}{4}$

Mixed questions

Q1 0.3

Q2 4

Q3 128 cm

Q4

Q5 0.9

Q6 5

Q7 $57\,^\circ$

Q8 $35\,\%$

Q9 4

Q10 12

Q11 -42

Q12 £ 13.60

Q13 180 p

Q14 $110\,^\circ$

Q15 $60 \times \frac{7}{10} = 42$

Q16 $72.5\,\%$

Q17 $\frac{82}{3}$ m^2

Q18 $\frac{6}{10}$

Q19 $4 \;\; 5 \;\; 12$

Q20 9

Q21 $\frac{53}{137}$

Q22 $\frac{4}{5}$

Q23 $54\,^\circ$

Q24 4

Q25 £ 18

Q26 5.6 kg

Q27 30 m

Q28 $\frac{7}{40}$