1

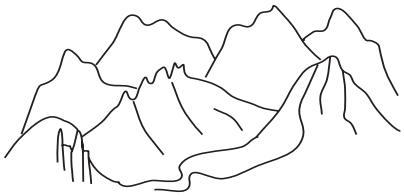
The heights of the 7 peaks in a mountain range are:

945 m, 1023 m, 1311 m, 996 m, 1286 m, 1504 m, 1150 m

a) Write the data in increasing order in your exercise book.

b) Calculate the **difference** between the highest and the lowest heights.

The **range** of the sample is ☐ m.



c) Calculate the **average** height of these 7 peaks.

The **mean** of the sample is ☐ m.

d) Find the **middle** value among the 7 heights.

The **median** of the sample is ☐ m.

2

These are the masses of 8 pumpkins.

8.3 kg, 9.7 kg. 7.9 kg, 9.1 kg, 9.0 kg, 7.6 kg, 9.0 kg, 7.9 kg

a) Write the data in increasing order in your exercise book.

b) Calculate the **difference** between the heaviest and lightest pumpkin.

The **range** of the sample is ☐ kg.

c) Which is the most frequent value?

The **mode** of the sample is ☐ kg and ☐ kg.

d) Calculate the **average** mass of the 8 pumpkins.

The **mean** of the sample is ☐ kg.

e) Find the **middle** value among the masses.

The **median** of the sample is the mean of the 4th and 5th values:

$$\frac{\square + \square}{2} = \frac{\square}{2} = \square \text{ (kg)}$$

3

These were the scores of pupils in a class who took a mathematics test which had a maximum score of 50 marks.

3 pupils: 48 marks, 1 pupil: 26 marks, 2 pupils: 47 marks, 1 pupil: 45 marks,
4 pupils: 44 marks, 5 pupils: 43 marks, 1 pupil: 27 marks, 2 pupils: 29 marks,
1 pupil: 30 marks, 2 pupils: 32 marks, 2 pupils: 35 marks, 2 pupils: 38 marks,
1 pupil: 40 marks, 3 pupils: 41 marks

In your exercise book: a) write the data in a table b) draw a bar chart.

c) What is: i) the **range** ii) the **mode** iii) the **mean**
of the data?

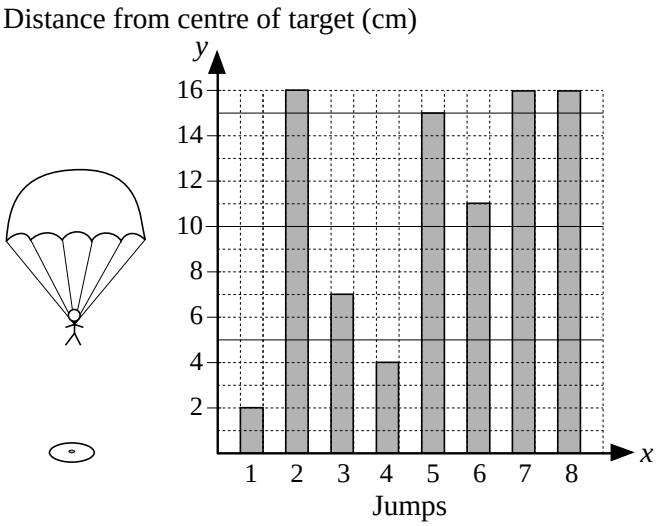
1

In a parachute target jumping competiton, each competitor makes 8 jumps.

The target is a circle with radius 16 cm. The scores range from 0 cm to 16 cm, depending on how far away from the centre of the target circle the parachutist lands.

If the parachutist misses the target completely, the lowest score they can get is 16 cm.

The bar chart shows the scores of one competitor.



a) Write the scores in decreasing order in your exercise book.

b) What is the range of the data?

Range: ☐ cm

c) What is the mode of the data?

Mode: ☐ cm

d) Calculate the mean value.

Mean: ☐ cm

e) Calculate the mean of the two middle scores.

Median: ☐ cm

2

In a survey about television programmes, a quarter of the people questioned preferred nature programmes, an eighth preferred science programmes, 3 eighths preferred romantic films, an eighth preferred sports events and 40 people preferred game shows.

a) Draw a pie chart to show the data.

b) What part of the number of people questioned preferred game shows?

c) How many people were questioned in the survey?

d) How many people preferred each of the first 4 types of programmes?

3

The tables show the times when the sun rose and set in a certain place on the 21st day of each month over one year.

a) Complete the tables to show the hours of daylight and darkness on each day.

Date	21 Jan	21 Feb	21 Mar	21 Apr	21 May	21 Jun
Sunrise	07:23	06:41	05:46	04:45	04:02	03:46
Sunset	16:28	17:16	17:57	18.41	19:21	19:45
Day-time ☼						
Night-time ☽						

Date	21 Jul	21 Aug	21 Sep	21 Oct	21 Nov	21 Dec
Sunrise	04:08	04:47	05:29	06:10	06:57	07:29
Sunset	19:33	18:47	17:45	16:46	16:02	15:55
Day-time ☼						
Night-time ☽						

b) Make a graph to show the hours of daylight.

c) Calculate the **mean** of the daylight hours.

d) Calculate the **range** of:

i) the day-time hours

ii) the night-time hours.

e) Calculate the **median** of the daytime hours.

1

The **pictogram** shows the number of weddings in a certain city over one year.

a) Write the actual numbers in the table.

♡ = 500 weddings

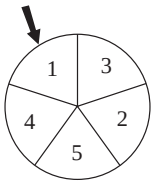
January	♡♡♡♡♡
February	♡♡♡◔
March	♡♡♡♡♡♡
April	♡♡♡♡♡♡♡◔
May	♡♡♡♡♡♡♡♡♡♡
June	♡♡♡♡♡♡♡♡♡♡◔
July	♡♡♡♡♡♡♡♡♡♡
August	♡♡♡♡♡♡♡♡♡♡♡
September	♡♡♡♡♡♡♡♡
October	♡♡♡♡♡
November	♡♡♡♡
December	♡♡♡♡♡◔

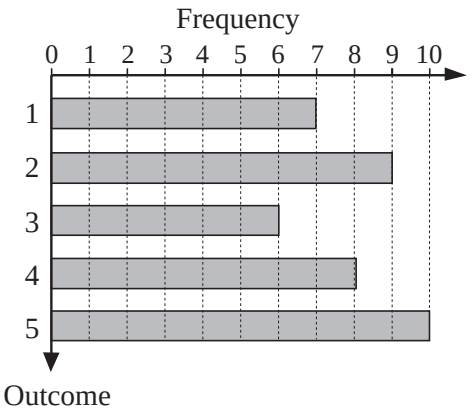
b) Calculate in your exercise book the **range** of the monthly data.

c) Calculate in your exercise book the **average** number of weddings per month.

2

The bar chart shows how many times this spinner stopped on 1, 2, 3, 4 and 5.





Work in your exercise book.

a) Calculate the **range** of the data.

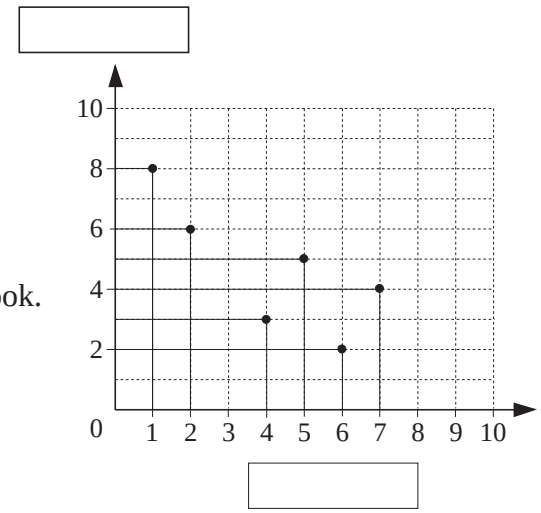
b) What is the **mode** of the data?

c) Calculate the **relative frequency** of each outcome.

d) Calculate the **mean** of the data.

3

In this graph, you can see 6 connecting pairs of numbers.



a) Make up a problem about these pairs of numbers so that the graph represents appropriate data and frequencies. Label the axes.

Write the problem in your exercise book.

b) Calculate in your exercise book:

i) the **range** of the data

ii) the **mode** of the data

iii) the **mean** of the data.

1

The table shows some data from an international project on attainment in mathematics.

The table shows the **mean scores** on a test out of *140 marks* achieved by the pupils in 10 project schools in one of the countries in the project.

School code	A	B	C	D	E	F	G	H	I	J
School mean score	89	94	80	107	95	117	87	77	90	85
Number of pupils	58	75	32	70	93	75	34	9	10	18

a) Calculate the difference between the highest and lowest means.

b) What is the **average** of the school means (as if an equal number of pupils did the test in each school)?

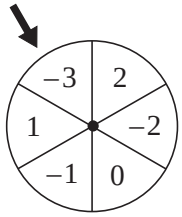
c) How many pupils did the test in this country?

d) Calculate the **mean score** for the country, taking the number of children in each school into consideration.

2

John spun this spinner several times. He wrote down the number it stopped at each time. This is what he wrote.

0, 2, –3, –1, 2, 1, –2, 0, –2, 0, 2,
2, –3, –1, 1, 2, 0, –3, –2, 2, 1



a) Write the data in increasing order in your exercise book.

b) Calculate the **range** of the data. c) What is the **mode** of the data?

d) Calculate the **mean** of the data. e) What is the **median** of the data?

3

A river flowed through a city and on the wall of a certain bridge was marked the water levels of the river. The zero mark was set at 113 m above sea level.

The level of the river was measured each week and the data are shown in the table.

River level (cm)	265	183	95	– 36	– 110	– 280	– 196	– 72
Height above sea level (m)								

a) Calculate the heights (rounded if necessary) above sea level. Complete the table.

b) Write the river levels in order in your exercise book.

c) Calculate: i) the **mean** of the data ii) the **median** of the data.

4

Which two numbers are missing from this data sample if its **median** is 2.6, its **mode** is 3.1 and its **mean** is 2.5? (The data are already in order.)

1.1 1.4 2.1 ☐ 3.1 ☐ 4.1

1

These are the heights of the 8 giraffes in a zoo.

5.44 m, 5.71 m. 4.35 m, 4.88 m, 5.06 m, 4.26 m, 4.90 m 5.71 m

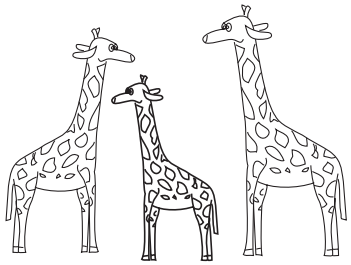
a) Write the data in increasing order in your exercise book.

b) What is the **range** of the data? ☐ m

c) What is the **mode** of the data? ☐ m

d) What is the **mean** of the data? ☐ m

e) What is the **median** of the data? ☐ m



2

The school bus is always late in the morning. James was so fed up that he noted the number of minutes it was late every day for a week so that he could write a letter of complaint to the bus company.

The bus is due at James' bus stop at 8.24 am and these were the times it arrived.

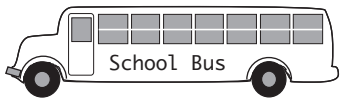
Mon: 8.43 am, Tue: 8.29 am, Wed: 8.25 am, Thu: 8.50 am, Fri: 8.36 am

In your exercise book:

a) list the number of minutes the bus was late each day in increasing order;

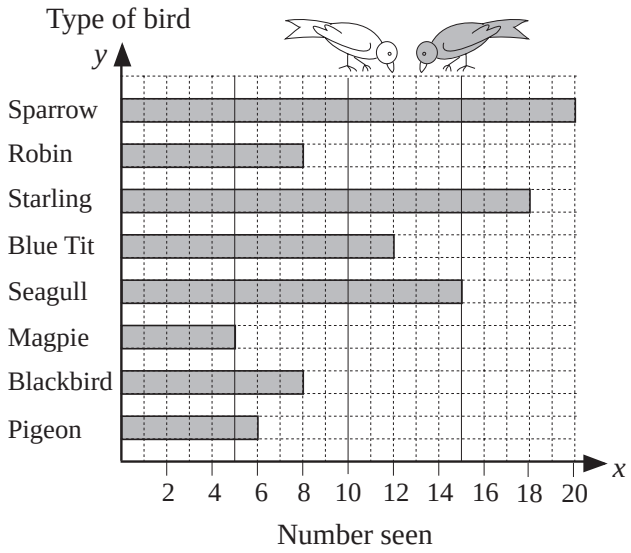
b) calculate the range, median and mean of the data;

c) write a letter of complaint using these values.



3

The 10 members of a young bird-watchers' club decided to make a note of which types of birds they saw in their gardens between 9.00 am and 10.00 am one Saturday morning.



They collected all the data and showed them in this bar chart.

a) Write the data in a table in your exercise book.

b) Which bird was seen most often?

c) What was the average number of each type of bird seen per garden?

d) How many birds were seen altogether?

e) Show the data in another way.

f) What do you think might be wrong with the data that they collected?

4

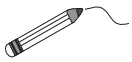
In a class survey on pets it was found that 8 pupils had dogs, 2 pupils had rabbits, 6 pupils had cats, 4 pupils had hamsters and 4 pupils had no pets.

a) Show the data in different ways. b) Write questions about the data.

1

A bag contains 3 *red* and 5 *green* marbles. (R) (R) (R) (G) (G) (G) (G) (G)

If you took out a marble with your eyes closed, what chance would you give to each of these outcomes? Join each outcome to the appropriate level of chance.



a) The marble taken out is *red*.

b) The marble taken out is *green*.

c) The marble taken out is *red* **and** *green*.

d) The marble taken out is **not** *green*.

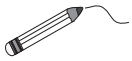
e) If you take out a marble, put it back again, then take out a second marble, both marbles will be *red*.

f) The marble taken out is *red* **or** *green*.

Certain
Likely
Unlikely
Impossible

2

Join each outcome to the matching level of chance.



a) In the year 2012, there will be a 29th of February.

b) If a fair dice is thrown, it will land with 5.2 facing up.

c) If a fair coin is flipped it will land with a tail facing up.

d) If a fair coin is flipped it will **not** land with a tail facing up.

e) If a fair dice is thrown it will **not** land with an even number facing up.

f) If we took 7 marbles from a bag of 6 *red* and 3 *blue* marbles, at least one of the 7 would be *red*.

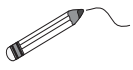
g) Next year, twice as many girls as boys will be born.

Certain
Likely
Equally likely as unlikely
Unlikely
Impossible

3

In a summer camp, 4 Polish children, 4 Hungarian children and 2 Scottish children have formed a friendly group. They are going on a boat trip and get on board the boat in a random order.

a) Join each outcome to the matching level of chance.



i) The first 5 children to get on board are Polish.

ii) The last child to get on board is Polish or Hungarian or Scottish.

iii) The first child to get on board is Scottish.

iv) The first 4 children to get on board are Polish, Hungarian, Polish and Scottish in that order.

v) The first child to get on board is Hungarian.

Certain
Likely
Equally likely as unlikely
Unlikely
Impossible

b) i) What part of the group is Scottish?

ii) What chance is there that the first child on board is Scottish?

iii) What is the probability of the first child on board being Polish or Hungarian?

1

a) Throw a fair dice **60** times. Keep a tally of the outcomes. Write the **frequency** in the table and calculate the **relative frequency** of each outcome.

Outcome	Tally of 60 throws	Frequency	Relative Frequency
⚀			
⚁			
⚂			
⚃			
⚄			
⚅			
		n = 60	

b) Collect the data for the class and calculate the relative frequencies in your exercise book. Write a sentence about what you notice.

2

What chance do you think each of these outcomes has of happening? Write its letter at the appropriate place below the probability scale.

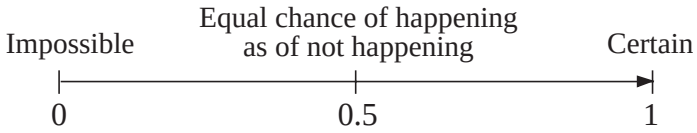
A: If a card is picked at random from a full pack of playing cards, it will be a *heart*.

B: When you throw a fair dice the score will **not** be less than 3.

C: The next baby born in your local hospital will be a girl.

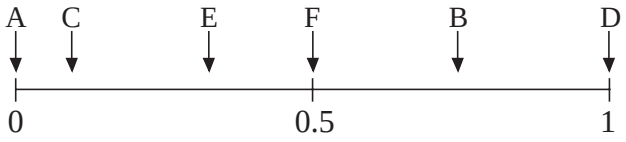
D: A card picked at random from a pack of playing cards will be *black* or *red*.

E: The next Olympic Games will be held in 2007.



3

This **probability scale** shows the probabilities of 6 outcomes: A, B, C, D, E and F.



a) Which outcome is: i) **certain** to happen ☐ iii) **impossible** ☐

iii) the **most unlikely** to happen but is not impossible? ☐

b) Which outcomes are **more likely than C** to happen? . . . . . .

c) Which outcome is the **least likely** to happen, but is not impossible? ☐

4

In a bag, there are 5 *red*, 2 *green* and 3 *yellow* marbles. If you take out 1 marble at random with your eyes closed, what its the probability that it will be:

a) *red* b) *green* c) *yellow* d) not *red* e) not *green* f) *blue*?

1

An **opaque** jar contains 7 *red*, 3 *white* and 5 *black* balls, all the same size.
One of the balls is taken out at random and then replaced.

a) Which colour is the ball **most** likely to be? . . . . . .

b) Which colour is the ball **least** likely to be? . . . . . .

c) If you did the experiment 300 times, how many times would you expect the ball to be *red*? ☐

d) What do you think is the probability of the ball being:

i) *red* ☐ ii) *white* ☐ iii) *black*? ☐

2

a) Toss two coins 40 times and write your results in this table.

Outcome	Tally of 40 tosses	Frequency	Relative Frequency
2 Heads			
1H + 1T			
2 Tails			
		$n = 40$	

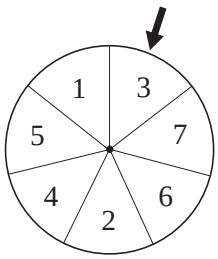
b) Collect the class data and calculate the relative frequencies in your exercise book.

c) What is the probability of each outcome?

i) 2 Heads ☐ ii) 1 Head + 1 Tail (in any order) ☐ iii) 2 Tails ☐

3

a) If this spinner is spun, how often would you expect the pointer to come to rest on each of the numbers?



. . . . . .

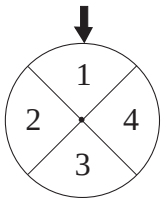
b) Calculate:

i) p (even number) ☐ ii) p (odd number) ☐

iii) $p\,(x > 5)$ ☐ iv) $p\,(x \leq 4)$ ☐

4

A fair spinner was spun twice.



a) List the possible outcomes, if their order is important.

b) If you repeated the experiment 160 times, how many times would you expect each of these outcomes to happen?

i) 2, 2 ☐ ii) 1, 3 ☐ iii) 4, 2 in any order ☐

c) What is the **probability** of each outcome?

i) 2, 2 ☐ ii) 1, 3 ☐ iii) 4, 2 in any order ☐

1

a) If you toss 3 fair coins one after the other, what are the possible outcomes if the order in which they occur is taken into account?

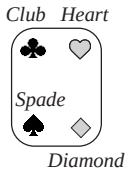
. . . . . .

b) Calculate the probability of each of these outcomes.

i) 3 H ☐ ii) 2 H + 1 T ☐ iii) 1 H + 2 T ☐ iv) 3 T ☐

2

In a game, a card is taken at random from a full pack of 52 playing cards. The card is then replaced in the pack and a second card is taken.



a) Draw a **tree diagram** to show all the possible outcomes.

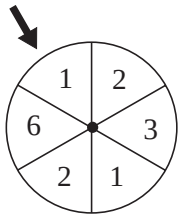
b) Use it to help you calculate these probabilities.

i) Both cards are *clubs*. ☐ ii) Neither card is a *club*. ☐

iii) Exactly 1 card is a *club*. ☐ iv) At least 1 card is a *club*. ☐

3

This spinner is fairly divided into 6 equal sectors but the possible outcomes do not have equal chances.



a) List the possible outcomes. . . . . .

b) Calculate the probability of each outcome in your exercise book.

4

Imagine that the spinner in *Question 3* is spun **twice** and the two numbers are added together. Calculate these probabilities in your exercise book and write them here.

a) The total score is 5. ☐ b) The total score is less than 5. ☐

c) The total score is an odd number. ☐ d) The total score is a multiple of 3. ☐

e) The total score is greater than 4. ☐

5

Dad wrote 3 different letters and addressed 3 envelopes. Then he heard the baby crying and went to see what was the matter. While he was out of the room his little daughter, who could not read, put a letter into each envelope and sealed it.

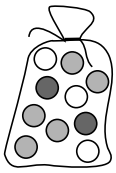
What is the probability that :

a) none of the letters was in the correct envelope

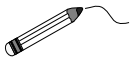
b) all the letters were in the correct envelope?

(List all the possible outcomes in your exercise book to help you work it out.)

1



A bag contains 2 *red*, 3 *yellow* and 5 *green* marbles.



If you took out a marble with your eyes closed, what chance would you give to each of these outcomes?

Join each outcome to the appropriate level of chance.

Certain
Likely
Equally likely as unlikely
Unlikely
Impossible

a) The marble taken out is *green*.

b) The marble taken out is *red*.

c) The marble taken out is either *red* **or** *yellow*.

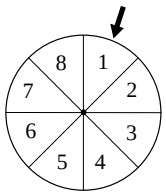
d) The marble taken out is **not** *yellow.*

e) The marble taken out is *black*.

f) The marble taken out is **not** *black.*

2

a) If this spinner is spun, how often would you expect the pointer to come to rest on each of the numbers?



. . . . . .

b) Calculate these probabilities if x is the number to which the arrow is pointing.

i) p (x is even) = ☐ ii) p ($x > 6$) = ☐ iii) p ($x > 8$) = ☐

iv) p (x is prime) = ☐ v) p ($x \leq 6$) = ☐ vi) p ($x \leq 8$) = ☐

3

a) If 4 fair coins are tossed one after the other, what are the possible outcomes if the order in which they occur is taken into account? List them all.

. . . . . .

. . . . . .

b) Calculate the probability of each of these outcomes.

i) p (4H) = ☐ ii) p (3H + 1T) = ☐ iii) p (2H + 2T) = ☐

iv) p (1H + 3T) = ☐ v) p (4T) = ☐ vi) p (3H + 2T) = ☐

4

The spinner in *Question 2* is spun twice and the two numbers are added together. Calculate these probabilities in your exercise book and write them here.

a) The total score is 4. ☐ b) The total score is 4 or less. ☐

c) The total score is 16. ☐ d) The total score is more than 4. ☐

1 Calculate the products.

a) $9 \times 2 =$

$9 \times 1 =$

$9 \times \frac{1}{2} =$

$9 \times \frac{1}{4} =$

$9 \times \frac{1}{8} =$

b) $6 \times 3 =$

$6 \times 1 =$

$6 \times \frac{1}{3} =$

$6 \times \frac{2}{3} =$

$6 \times \frac{1}{6} =$

c) If $a \times b = c$, then

$a \times \frac{b}{2} =$

$a \times \frac{b}{3} =$

$a \times \frac{b}{4} =$

$a \times \frac{b}{5} =$

2 Calculate the products.

a) $25 \times 100 =$

$25 \times 10 =$

$25 \times 1 =$

$25 \times 0.1 =$

$25 \times 0.01 =$

$25 \times 0.001 =$

b) $7 \times 2 =$

$7 \times 0.2 =$

$7 \times 0.6 =$

$7 \times 0.1 =$

$7 \times 0.05 =$

c) $41 \times 0.3 =$

$15 \times 0.3 =$

$10 \times 0.3 =$

$5 \times 0.3 =$

$0 \times 0.3 =$

3 Calculate the quotients.

a) $\frac{4}{5} \div 4 =$

$\frac{4}{5} \div 2 =$

$\frac{4}{5} \div 1 =$

b) $\frac{5}{9} \div 1 =$

$\frac{5}{9} \div 2 =$

$\frac{5}{9} \div 4 =$

c) $1\frac{2}{3} \div 5 =$

$1\frac{2}{3} \div 2 =$

$2\frac{2}{3} \div 2 =$

d) $0.8 \div 4 =$

$2.4 \div 4 =$

$16.8 \div 8 =$

$0.8 \div 40 =$

4 Calculate in your exercise book:

a) i) $\frac{1}{4}$ of 240 kg ii) $240 \text{ kg} \times \frac{1}{4}$

b) i) $\frac{1}{6}$ of 240 kg ii) $240 \text{ kg} \times \frac{1}{6}$

c) i) $\frac{3}{4}$ of 240 kg ii) $240 \text{ kg} \times \frac{3}{4}$

d) i) $\frac{5}{6}$ of 240 kg ii) $240 \text{ kg} \times \frac{5}{6}$

e) i) $\frac{9}{4}$ of 240 kg ii) $240 \text{ kg} \times \frac{9}{4}$

f) i) 0.4 of 240 kg ii) $240 \text{ kg} \times 0.4$

5 a) In a certain year, 1 kg of sugar beet contained $\frac{9}{50}$ kg of sugar on average.

How much sugar was in 1200 kg of sugar beet that year?

b) What is 3 sevenths of 5 and 3 fifths kilometres?

1

Solve the problem in your exercise book in the 3 ways shown below.

An express train is travelling at a steady speed of 105 km per hour.

How far does it travel in: i) $\frac{4}{5}$ of an hour ii) $1\frac{3}{4}$ hours?

a) Use proportion like this:

$\frac{1}{5}$ hour $\rightarrow$? km

$\frac{4}{5}$ hour $\rightarrow$? km

b) Write a plan using 2 operations in one line.

c) Write a plan using a single multiplication.

2

What is the whole quantity if:

a) $\frac{1}{4}$ of it is 18 m b) $\frac{1}{5}$ of it is 253 litres c) 0.1 of it is 31 km

d) 0.01 of it is 27.6 kg?

Calculate like this in your exercise book. a) If $\frac{1}{4}$ is 18 m, then $\frac{4}{4}$ is . . . . . m

3

a) Three quarters of my money is £660. How much money do I have?

b) How much does 1 metre of material cost if 4 fifths of a metre costs £6.40?

c) A barrel is filled to 0.7 of its capacity with 56 litres of water.
How much water could the barrel hold when it is full?

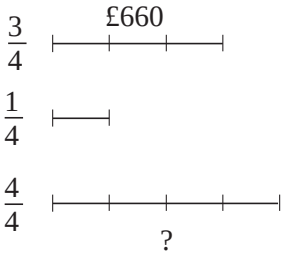
d) How much does 1 kg of apples cost if $2\frac{1}{4}$ kg cost £1.53?

Calculate like this in your exercise book. Draw a diagram for the other parts too.

For example: a) If $\frac{3}{4} \rightarrow$ £660

then $\frac{1}{4} \rightarrow$ £. . . . . .

and $\frac{4}{4} \rightarrow$ £. . . . . .

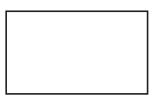


4

Calculate the length of the **adjacent side**, then the **perimeter** and the **area** of the shape.

a) The length of a rectangle is 48 mm and its adjacent side is 5 sixths as long.

b = ? P = ? A = ?



$b = \frac{5}{6}$ of a

a = 48 mm

b) One side of a rectangle is 7.2 cm, which is 3 fifths of the length of its adjacent side.

b = ? P = ? A = ? (Draw a rough sketch of the rectangle first.)

c) One side of a rectangle is 25 m, which is 1.2 times the length of its adjacent side.

b = ? P = ? A = ? (Draw a rough sketch of the rectangle first.)

1

Do the calculations in your exercise book.

a) i) $15\text{ m} \times \frac{3}{4}$ ii) $\frac{3}{4}$ of 15 m b) i) $3\text{ litres} \times 1\frac{5}{6}$ ii) $1\frac{5}{6}$ of 3 litres

c) Do each multiplication as if both factors were whole numbers first, then write the decimal point in the correct place in the product.

i) 5×0.75 ii) 37×0.285 iii) 16×23.8

d) i) $\frac{2}{5} \div 3$ ii) $10\frac{4}{5} \div 6$ iii) $23.8 \div 5$

2

a) *Sally* and *Mandy* calculated $\frac{4}{5}$ of 345 plums in different ways.

Sally's plan: $345 \div 4 \times 5$ *Mandy's plan*: 345×0.8

Who was correct? Who was wrong? Write the incorrect plan again correctly.

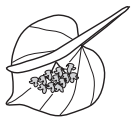
b) *Henry* tried the same calculation but he wrote this plan: $345 \times \frac{4}{5}$. Was he correct?

c) *Ronny* tried it too and wrote another plan: $345 \times 4 \div 5$. Was he correct?

3

Write a plan, estimate, calculate, check your result and write the answer in a sentence.

When the blossom of a Linden Tree is dried, it loses $\frac{74}{100}$ of its mass.



a) How much dried blossom can you get from 325 kg of fresh blossom?

b) How much fresh blossom is needed to produce 390 kg of dried blossom?

4

Alice and Ben are discussing a problem about which is the better buy.

One shop reduces the original price of an item costing £100 by 0.3. Another shop cuts 2 tenths off the original price of £100, then cuts 0.1 off the reduced price.

Alice thinks that the first shop has the better offer. Ben thinks that they are the same.

Who do you agree with? Why? Write a sentence in your exercise book.

5

Solve the problems in your exercise book.

a) The original price of an item was reduced by 0.14 and it now costs £192. What was its original price?

b) A shop reduced the £60 price of a pair of shoes by 1 fifth, then later increased the reduced price by 1 quarter. How much do the shoes cost now?

6

The length of a room is 9 m. Its width is 2 thirds of its length and 1.5 of its height.

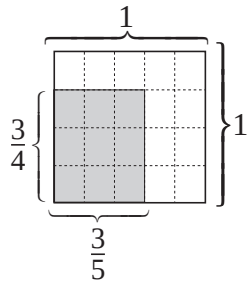
Calculate: a) its width and height c) its surface area d) its capacity.

1 Calculate the products in your exercise book. Notice how they change.

a) i) 2.3×50
ii) 2.3×5
iii) 2.3×0.5
iv) 2.3×0.005

b) i) $\frac{4}{7} \times 4$ ii) $\frac{4}{7} \times 1$ iii) $\frac{4}{7} \times \frac{1}{4}$
iv) $\frac{4}{7} \times 2$ v) $\frac{4}{7} \times \frac{1}{2}$ vi) $\frac{4}{7} \times \frac{1}{8}$

2 Fill in the missing numbers.



a) One of the sides of this unit square is divided into $\square$ equal parts and the adjacent side is divided into 5 equal parts.

b) Each grid rectangle is $\square$ of the area of the square.

c) Let's calculate the area of the shaded rectangle in 3 ways.

i) $A = \frac{3}{5}$ of $\square$ of 1 = $\square$ ii) $A = \frac{3}{4}$ of $\square$ of 1 = $\square$

iii) $A = \frac{3}{4} \square \frac{3}{5} = \square$

3 Calculate the area of each of these rectangles, if a and b are two adjacent sides. (Draw a rough sketch first.)

a) $a = \frac{3}{4}$ m, $b = \frac{2}{3}$ m b) $a = \frac{3}{4}$ m, $b = \frac{1}{2}$ m

c) $a = 2\frac{1}{2}$ m, $b = 1\frac{1}{2}$ m d) $a = 1.8$ m, $b = 1.5$ m

4 If *Snail* moves $\frac{4}{5}$ of a metre every minute, how far will he move in:

a) 5 minutes b) 11 minutes c) $\frac{1}{4}$ minute d) $\frac{3}{4}$ minute e) $1\frac{2}{3}$ minutes?

5 Practise multiplication.

a) i) $\frac{5}{7} \times \frac{2}{3}$ ii) $\frac{4}{5} \times \frac{5}{9}$ iii) $\frac{7}{14} \times \frac{5}{2}$ iv) $\frac{15}{25} \times \frac{16}{12}$

b) i) $-\frac{3}{4} \times \frac{10}{9} \times \frac{2}{5}$ ii) $\frac{13}{25} \times \left(-\frac{5}{26}\right)$ iii) $-\frac{2}{5} \times \left(-\frac{5}{2}\right)$

c) i) $1\frac{2}{3} \times 4\frac{1}{2}$ ii) $2\frac{1}{3} \times \left(-1\frac{2}{3}\right)$ iii) 15.2×4.3

1

Calculate the products.

a)	$372 \times 100 =$	b)	$9 \times 700 =$	c)	$4.2 \times 50 =$
	$372 \times 10 =$		$9 \times 70 =$		$4.2 \times 5 =$
	$372 \times 1 =$		$9 \times 7 =$		$4.2 \times 0.5 =$
	$372 \times 0.1 =$		$9 \times 0.7 =$		$4.2 \times 0.05 =$
	$372 \times 0.01 =$		$9 \times 0.07 =$		$4.2 \times 0.005 =$
	$372 \times 0.001 =$		$9 \times 0.007 =$		$0.42 \times 500 =$

2

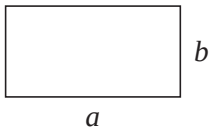
Use a **different** plan to solve each part of the problem.

A plane is flying at a steady speed of 510 km per hour. How far does it travel in:

a) $\frac{3}{5}$ of an hour b) $1\frac{1}{4}$ hours?

3

Calculate the area and perimeter of each of these rectangles.



a) $a = \frac{3}{5}$ m, $b = \frac{3}{4}$ m b) $a = 0.65$ m, $b = 1.2$ m

c) $a = \frac{3}{4}$ m, $b = 0.32$ m d) $a = 784$ mm, $b = 78.4$ cm

4

If you cycle at a steady speed of 8.4 m every second, how far will you travel in:

a) 5 seconds b) 10 seconds c) $\frac{1}{4}$ minute d) 1 minute e) 1 hour?

5

Solve the problem in your exercise book.

a) In a sale, the price of a television costing £300 was reduced by 10%, then its reduced price was cut by another 10%. What is its new sale price?

b) When the sale had finished, the price of the television was increased by 20%. Is the increased price now more than £300, less than £300 or equal to £300?

6

Which number does each letter represent? Work out the answers in your exercise book.

a) $\frac{a}{8} \times 5 = 40$ b) $\frac{50}{b} \times 8 = 40$ c) $\frac{5}{8} \times c = 40$ d) $\frac{5}{8} \times 5 = d$

7

a) What is: i) 0.75 ii) 1 twelfth iii) $\frac{3}{100}$ iv) $\frac{5}{24}$ v) 40% of 36.12 kg?

b) What is the whole amount if:

i) 0.75 ii) 1 twelfth iii) $\frac{3}{100}$ iv) $\frac{5}{24}$ v) 40% of it is 36.12 kg?

1 Complete the plans and do the calculations. If 1 m of material costs £ $\frac{4}{5}$, then:

a) 3 m → .....

b) $\frac{1}{2}$ m → .....

c) $\frac{3}{4}$ m → .....

d) $4\frac{2}{5}$ m → .....

e) 3.6 m → .....

2 Do the multiplications. **Simplify** the fractions first where possible.

a) i) $\frac{2}{5} \times \frac{4}{7}$ ii) $\frac{2}{5} \times \frac{7}{4}$ iii) $\frac{5}{2} \times \frac{4}{7}$ iv) $\frac{5}{2} \times \frac{7}{4}$

b) i) $\frac{5}{42} \times \frac{7}{15}$ ii) $\frac{5}{42} \times \frac{15}{7}$ iii) $\frac{42}{5} \times \frac{7}{15}$ iv) $\frac{42}{5} \times \frac{15}{7}$

c) i) $\frac{3}{4} \times \frac{2}{6} \times \frac{8}{15} \times \frac{60}{80}$ ii) $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6}$

d) i) $2\frac{4}{5} \times \frac{1}{2}$ ii) $\frac{11}{4} \times 2\frac{5}{20}$ iii) $2\frac{1}{3} \times 1\frac{2}{7}$

3 Complete the plans and do the calculations. If 1 cm^3 of pure gold weighs 19.32 g, then:

a) 4 cm^3 → .....

b) 15 cm^3 → .....

c) 0.1 cm^3 → .....

d) 0.7 cm^3 → .....

e) 1.6 cm^3 → .....

f) 72.1 cm^3 → .....

4 a) i) 43.6 × 0.7 ii) 43.6 × 1 iii) 43.6 × 1.3

b) i) $9\frac{4}{5} \times 0.8$ ii) 2.5 × 2.5 iii) 3.5 × 3.5

5 A car has already covered $\frac{3}{5}$ of an $80\frac{5}{8}$ km journey. a) How far has it travelled?

b) What part of the journey has still to be done? c) How far does it still have to go?

1 Do these calculations in your exercise book. **Simplify** where possible.

a) $\left(\frac{2}{3}+\frac{3}{4}\right)\times\frac{12}{19}$ b) $\left(\frac{1}{3}+\frac{2}{9}-\frac{5}{18}\right)\times\frac{9}{5}$

c) $\frac{1}{3}\times\frac{1}{2}+\frac{1}{2}-\frac{3}{4}\times\frac{4}{5}-\frac{3}{5}\times\frac{5}{4}$ d) $\left(1-\frac{1}{2}\right)\times\left(1-\frac{1}{3}\right)\times\left(1-\frac{1}{4}\right)$

2 Write a plan, do the calculation and write the answer in a sentence.

a) Three pieces of ribbon were cut from a $16\frac{1}{5}$ m length.

The 1st piece was $\frac{4}{5}$ m, the 2nd piece was $1\frac{1}{2}$ m and the 3rd piece was 3 times as long as the 1st and 2nd pieces put together.

i) What length of ribbon was cut off altogether?

ii) What length of ribbon was left?

b) *Rabbit* ran $5\frac{3}{4}$ km in an hour. In the next two hours, he ran $5\frac{1}{4}$ km less than 3 times the distance he ran in the first hour. How far did *Rabbit* run altogether?

3 Write as many different plans as you can. Calculate one of them.

What is: a) $\frac{3}{5}$ of $2\frac{1}{4}$ km b) $1\frac{5}{8}$ of £132.50 c) $\frac{4}{100}$ of $520\frac{4}{5}$ kg?

4 Write as many different plans as you can. Calculate one of them.

What is: a) 0.85 of $2\frac{1}{3}$ tonnes b) 1.2 of £450.80

c) 0.09 of 72.6 m d) 0.1 of 0.1 of a litre?

5 Find a rule. Complete the table. *Rule*: a = b =

a	10	-10	3	1	5	-8	$1\frac{1}{4}$			0		-4
b	4	-4	$\frac{6}{5}$	0.4				-2	0.6		$\frac{8}{10}$	

6 a) If 0.75 tonnes of wheat costs £38.40, what is the cost of:

i) 1 tonne ii) 6 tonnes iii) $\frac{7}{5}$ tonnes iv) 32.5 tonnes?

b) Solve this equation. $0.75 \times x = 38.4$ x = ?

What does it have to do with the question in part a)?

1

a) What is: i) $\frac{1}{100}$ of £500 ii) $\frac{9}{100}$ of 300 m iii) $\frac{17}{100}$ of 600 litres?

b) If $\frac{1}{100}$ can be written as 1% (read as 'one percent'), what is 20% of 16 km?

2

Express these parts of a whole unit in two ways. Follow the example.

a) $\frac{1}{100} = 0.01 \rightarrow 1\%$

b) $\frac{125}{100} = \square \rightarrow \square$

c) $\frac{8}{100} = \square \rightarrow \square$

d) $\frac{2}{100} = \square \rightarrow \square$

e) $\frac{67}{100} = \square \rightarrow \square$

f) $\frac{100}{100} = \square \rightarrow \square$

3

Express these parts of a whole unit in two ways. Follow the example.

a) $0.68 = \frac{68}{100} \rightarrow 68\%$

b) $0.05 = \square \rightarrow \square$

c) $0.01 = \square \rightarrow \square$

d) $0.11 = \square \rightarrow \square$

e) $2.42 = \square \rightarrow \square$

f) $1.03 = \square \rightarrow \square$

4

Express these parts of a whole unit in two ways.

a) $47\% \rightarrow \square = \square$

b) $71\% \rightarrow \square = \square$

c) $6\% \rightarrow \square = \square$

d) $0\% \rightarrow \square = \square$

e) $193\% \rightarrow \square = \square$

f) $50\% \rightarrow \square = \square$

5

What is: a) 1% of 713 kg b) 1% of 36 m c) 1% of 58 907 m
d) 1% of 3 litres e) 1% of 41.6 kg f) 1% of 0.4 km?

6

What is: a) 1% of £534 b) 7% of £534 c) 29% of £534
d) 50% of £534 e) 110% of £534 f) 90% of £534?

7

What percentage is: a) 50 km of 100 km b) 10 litres of 100 litres
c) 3 kg of 100 kg d) 6 m of 6 m e) 100 km of 200 km
f) 30 kg of 1000 kg g) 50 litres of 500 lires h) 70 m of 70 m?

1 Express these percentages as fractions and decimals. Follow the example.

a) $8\% \rightarrow \frac{8}{100} = \frac{2}{25} = 0.08$

b) $3\% \rightarrow$

c) $15\% \rightarrow$

d) $50\% \rightarrow$

e) $25\% \rightarrow$

f) $80\% \rightarrow$

g) $75\% \rightarrow$

h) $150\% \rightarrow$

i) $33\frac{1}{3}\% \rightarrow$

j) $16.\dot{6}\% \rightarrow$

2 Express these fractions as decimals and percentages. Follow the example.

a) $\frac{1}{5} = 0.2 \rightarrow 20\%$

b) $\frac{3}{5} =$

c) $\frac{1}{2} =$

d) $\frac{3}{2} =$

e) $\frac{1}{8} =$

f) $\frac{5}{8} =$

g) $\frac{7}{10} =$

h) $\frac{6}{10} =$

i) $\frac{1}{20} =$

j) $\frac{15}{20} =$

k) $\frac{1}{3} =$

l) $\frac{2}{3} =$

3 Complete the table to show the different percentages of 5 m in mm, cm and metres.

Base unit: 5 m	100%	1%	10%	30%	60%	80%	120%
In mm							
In cm							
In m	5						

4 A grocer had 1.8 kg of curry powder in stock. He sold 2 ninths of it on Monday and 30% of it on Tuesday. How much curry powder did the grocer have left?

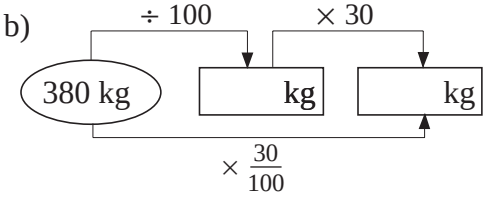
5 Write a word problem for each of these plans. Solve the problem and write the answer.

a) $100\% = \frac{100}{100} \longrightarrow 380$ km

$1\% = \frac{1}{100} \longrightarrow$ ☐ km

$30\% = \frac{30}{100} \longrightarrow$ ☐ km

b)



c) 380 litres × 0.3

1 Write these decimals as fractions and as percentages. Simplify the fractions where possible. Follow the example.

a) $0.15 = \frac{15}{100} = \frac{3}{20} \rightarrow 15\%$

b) $0.12 =$

c) $0.25 =$

d) $0.60 =$

e) $0.20 =$

f) $0.61 =$

g) $1.10 =$

h) $0.05 =$

i) $0.375 =$

j) $0.19 =$

k) $0.66 =$

l) $0.125 =$

2 Find a rule and complete the table. Write the rule in different ways.

x	9	$-1\frac{1}{2}$	-9	3	-6			1	12		8	
y	-6	1	6			-10	10			16		$-\frac{20}{3}$

$x =$ $y =$

3 What is:

a) i) 1% of 428 m ii) 9% of 428 m iii) 25% of 428 m

b) i) 1% of 512 kg ii) 20% of 512 kg iii) 19% of 512 kg?

4 What percentage is:

a) 20 kg of 100 kg b) 5 km of 25 km c) 0 m of 10 m

d) £43 of £100 e) 12 g of 200 g f) 7 mm of 7 mm?

5 Do the multiplications in your exercise book. **Simplify** the fractions first if possible.

a) i) $\frac{3}{4} \times \frac{2}{9}$ ii) $\frac{3}{4} \times \frac{9}{2}$ iii) $\frac{4}{3} \times \frac{2}{9}$ iv) $\frac{4}{3} \times \frac{9}{2}$

b) i) $\frac{4}{15} \times \frac{12}{5}$ ii) $\frac{15}{4} \times \frac{12}{5}$ iii) $\frac{4}{15} \times \frac{5}{12}$ iv) $\frac{15}{4} \times \frac{5}{12}$

c) i) $\frac{1}{3} \times \frac{3}{5} \times \frac{5}{7} \times \frac{7}{9}$ ii) $\frac{1}{2} \times \frac{4}{8} \times \frac{8}{16} \times \frac{32}{64} \times \frac{128}{256}$

6 Write a plan, do the calculation and write the answer in a sentence.

Three pieces of wood were cut from a 6.5 m plank. The 1st piece was 3 fifths of a metre, the 2nd piece was 4 fifths of a metre and the 3rd piece was 3 times the length of the 1st piece. What length of plank was cut off altogether? What length was left?

1

Solve the problem in your exercise book.

A shopkeeper has bought 40 kg of beans and wants to put them into equal-sized packs. How many packs could he make if each pack held:

a) 5 kg b) 2 kg c) 1 kg d) $\frac{1}{2}$ kg e) $\frac{1}{3}$ kg?

2

Calculate the quotients.

a) $32 \div 4 =$ b) $36 \div 9 =$ c) $\frac{4}{5} \div 4 =$

$32 \div 2 =$ $36 \div 3 =$ $\frac{4}{5} \div 2 =$

$32 \div 1 =$ $36 \div 1 =$ $\frac{4}{5} \div 1 =$

$32 \div \frac{1}{2} =$ $36 \div \frac{1}{3} =$ $\frac{4}{5} \div \frac{1}{2} =$

$32 \div \frac{1}{4} =$ $36 \div \frac{1}{9} =$ $\frac{4}{5} \div \frac{1}{4} =$

3

Solve the problems in your exercise book.

a) Five metres of material cost £4.50. How much does 1 metre cost?

b) A car travelled 174 miles in 3 hours. How far did it travel in 1 hour?

c) A bee flies 30 metres in half a minute. How far does it fly in 1 minute?

d) What is the price of 1 kg of fruit if 1 quarter of a kg costs £2?

e) I bought 3 fifths of a kg of beef for £6. What was the price per kilogram?

4

Do the divisions in any correct way. Check your result mentally with multiplication.

a) i) $3 \div \frac{1}{2} =$ ii) $5 \div \frac{1}{3} =$ iii) $10 \div \frac{1}{5} =$

b) i) $4 \div \frac{2}{3} =$ ii) $9 \div \frac{3}{2} =$ iii) $5 \div \frac{5}{8} =$

c) i) $\frac{4}{9} \div \frac{2}{9} =$ ii) $\frac{4}{9} \div \frac{2}{3} =$ iii) $\frac{6}{14} \div \frac{2}{7} =$

d) i) $\frac{2}{5} \div \frac{1}{2} =$ ii) $\frac{3}{4} \div \frac{2}{3} =$ iii) $\frac{8}{10} \div \frac{3}{10} =$

5

Write different plans for each problem. Use one of them to solve the problem.

a) In a class there are 15 girls, which is 6 tenths of the number of boys. How many pupils are in the class?

b) If 150 km is 2 thirds of a journey, what is the length of the whole journey?

1 Calculate the quotients. Notice how the quotient changes and follow the pattern.

a) $45 \div 100 =$
$45 \div 10 =$
$45 \div 1 =$
$45 \div 0.1 =$
$45 \div 0.01 =$

b) $2.4 \div 4 =$
$2.4 \div 2 =$
$2.4 \div 1 =$
$2.4 \div 0.5 =$
$2.4 \div 0.25 =$

2 Calculate the **whole quantity** in two ways in your exercise book.

a) Use the given fraction.

i) $\frac{4}{5}$ of a mass is 200 kg ii) $\frac{7}{10}$ of an area is 3.5 km^2

iii) $\frac{135}{100}$ of an amount of money is £1012.50

b) Convert the given fraction to a decimal and do the calculation again with decimals.

3 Calculate the **whole quantity** from the given decimal part. Check your result.

a) 0.3 of what length is 45 cm?

b) 0.85 of the mass of a box is 3.4 kg. What is the mass of the box?

c) Mike invested some money. After 1 year his investment was worth £334.80, which was 1.08 of the original amount. How much money did Mike invest?

4 Calculate the quotients (to 2 decimal digits). Check your results with a calculator.

a) i) $5.3 \div 0.4$ ii) $15 \div 0.9$ iii) $44.8 \div 0.56$

b) i) $27.2 \div 8.5$ ii) $2.924 \div 3.4$ iii) $22.2 \div 99.9$

5 Find a rule. Complete the table. Write the rule in different ways.

a)

a	6	2	10	5			1		0			1.2
b	3.6	$1\frac{1}{5}$	6		12	-9		-1		2.4	0.3	

$b =$ $a =$

b)

x	8.4	6.3	3.15	4.41	10.5			-42	0	
y	4	3	1.5			15	4.5			0.3

$y =$ $x =$

1

Do the multiplications and divisions. In each row use the 1st result to help with the rest.

a) i) 35.4×0.1 ii) 35.4×0.01 iii) 0.354×0.1

b) i) 63.5×24 ii) 63.5×2.4 iii) 6.35×2.4

c) i) $8.4 \div 6$ ii) $8.4 \div 0.6$ iii) $0.84 \div 0.06$

2

Fill in the missing numbers.

a) i) $63 \div \square = 9$ ii) $\square \div 7 = 0.9$ iii) $\square \div 70 = 0.9$

b) i) $\square \div 7 = 5$ ii) $\square \div 7 = 0.5$ iii) $\square \div 70 = 5$

c) i) $\square \div 4 = 250$ ii) $\square \div 4 = 2.5$ iii) $100 \div \square = 250$

d) i) $\square \times 30 = 540$ ii) $\square \times 0.3 = 54$ iii) $\square \times 30 = 5.4$

3

Do the multiplications. Check your results with a calculator.

a)

		1	7	8
	×	3	2	

b)

		7	0	2	
		×	2	1	5

c)

		5	0	2	
		×	0	2	5

4

Do the divisions to 2 decimal digits. Check with a calculator.

a) $57.2 \div 3.2$

3	2	5	7	2	

b) $71.34 \div 6.3$

c) $5.6 \div 0.06$

5

Solve the problems in your exercise book.

a) One side of a rectangle is 5.7 cm and its adjacent side is 1.2 times longer. What is the area of the rectangle?

b) 2.5 times the length of one side of a rectangular garden is 24 m. 0.75 of the adjacent side is 15.6 m. What is the area of the garden?

c) Which quantity is more: 0.75 of 96 kg or 2 thirds of 48 kg?

1

Solve the problems in your exercise book.

a) The product of two numbers is 367.2. One of the numbers is 3.6.
What is the other number?

b) The area of a rectangle is $304\frac{1}{5}$ m^2. The length of one of the sides is $3\frac{3}{5}$ m.
What is the length of the adjacent side?

2

In your exercise book, calculate these parts of **560 km^2**.

a) $\frac{3}{4}$ b) $1\frac{3}{5}$ c) 0.52 d) 48%

3

Write an operation to calculate the **whole** quantity if:

a) $\frac{4}{5}$ of it is 48 kg . . . . . .

b) $2\frac{1}{2}$ of it is 120 m . . . . . .

c) 1.6 of it is 50 tonnes . . . . . .

d) 96% of it is 33.6 g . . . . . .

4

Solve the problems in your exercise book. Write an equation first.

a) A is $\frac{5}{6}$ of $12\frac{2}{5}$ kg. 2.5 of B is $25\frac{5}{6}$ kg. Which is more, A or B?

b) $\frac{3}{5}$ of x is 60, x = ? c) 0.75 of y is 60, y = ? d) z is 0.4 of 60, z = ?

5

Do the calculations in your exercise book.

a) $\left(17\frac{3}{4} + 29\frac{4}{5}\right) \div \frac{3}{7}$ b) $(6.7 + 3.2) \div \frac{9}{11}$

c) $35.22 - 4 \times 3.15 + 0.75 \div 3$ d) $3.71 + (10.29 \div 7 - 0.25) \times 8$

6

Solve the problems in your exercise book.

a) The **sum** of two numbers is $18\frac{1}{2}$. The first number is 4 times the second number.
What are the two numbers?

b) The **difference** between two numbers is 18.5. The larger number is 6 times the smaller number. What are the two numbers?

1

A shopkeeper has bought 24 kg of mixed sweets and wants to put them into equal-sized packs. How many packs could be made if each pack held:

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

2

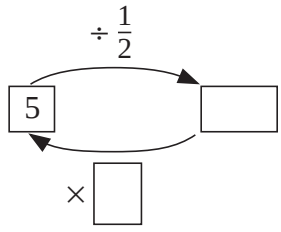
Calculate the quotients.

a)	$40 \div 4 =$	b) $45 \div 9 =$	c) $\frac{3}{5} \div 9 =$
	$40 \div 2 =$	$45 \div 3 =$	$\frac{3}{5} \div 3 =$
	$40 \div 1 =$	$45 \div 1 =$	$\frac{3}{5} \div 1 =$
	$40 \div \frac{1}{2} =$	$45 \div \frac{1}{3} =$	$\frac{3}{5} \div \frac{1}{3} =$
	$40 \div \frac{1}{4} =$	$45 \div \frac{1}{9} =$	$\frac{3}{5} \div \frac{1}{9} =$

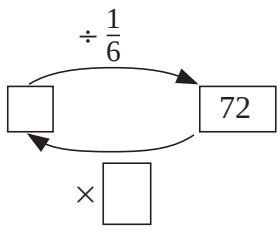
3

Complete the calculations.

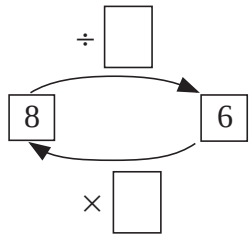
a)



b)



c)



4

Do the multiplications and divisions. Use the first result in each row to work out the rest.

a)	$27.8 \times 0.1 =$	$27.8 \times 0.001 =$	$2.78 \times 0.01 =$
b)	$42.5 \times 12 =$	$4.25 \times 1.2 =$	$425 \times 0.12 =$
c)	$7.8 \div 6 =$	$7.8 \div 0.6 =$	$0.78 \div 0.06 =$

5

Solve these problems in your exercise book.

a) One side of a rectangle is 6.5 cm. Its area is 20.8 cm^2. What is the length of the adjacent side?

b) One side of a rectangle is 6.5 cm. Its perimeter is 19.4 cm. What is its area?

c) 1.5 times the length of one side of a rectangular lawn is 7.2 m. 60% of the adjacent side is 3.3 m. What is the area of the lawn?

6

The sum of two numbers is 12.8. The first number is one third of the second number. What are the two numbers?

1

Solve the problems in your exercise book.

a) Calculate $\frac{4}{5}$ of 89.6 m. b) Calculate 80% of 89.6 m.

c) $\frac{3}{4}$ of a quantity is 720 kg. What is the whole quantity?

d) 75% of a quantity is 720 kg. What is the whole quantity?

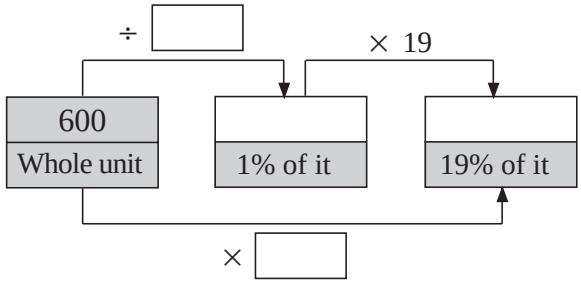
2

In your exercise book, calculate:

a) 15% of 800 b) 75% of 4000 c) 20% of 350 d) 100% of 26.3

3

What is 19% of 600? Fill in the items which are missing from the diagram.



4

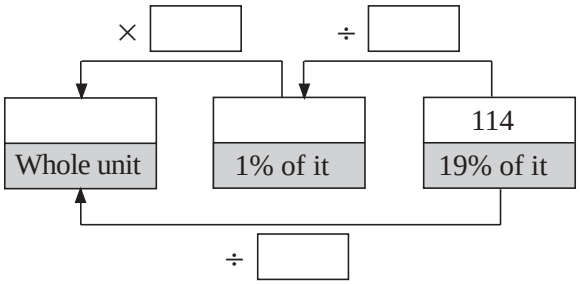
In your exercise book, calculate the **whole** quantity if:

a) 50% of it is 43 b) 17% of it is 595 c) 120% of it is 156

d) 100% of it is 36.25 e) $33\frac{1}{3}$% of it is 33 f) 150% of it is 300

5

If 19% of a quantity is 114, what is the whole quantity? Fill in the missing items.



6

Write a plan, estimate, calculate and check the result. Write the answer in a sentence.

a) A farmer planted strawberries to cover an area of 650 m^2, which is 40% of his garden. What is the area of his garden?

b) The population of a city has risen by 2% over the past year and there are now 3100 more people. What was the population of the city at this time last year?

1 Complete the table to show the different percentages of **160 kg** in kg and grams.

160 kg	1%	5%	10%	25%	50%	75%	100%	125%
in kg							160	
in g								

2 Complete the table to show the different percentages of **0.5 km** in km and metres.

0.5 km	1%	5%	10%	25%	50%	75%	100%	125%	90%
in km							0.5		
in m									

3 Complete the table to show the different percentages of a **right** angle, a **straight** angle and a **whole** angle (in °).

Angle	1%	5%	10%	25%	50%	70%	90%	100%	150%
Right									
Straight									
Whole									

4 Write the **whole** length in the table if 3.5 m is the given percentage.

If 3.5 m is:	1%	2%	4%	5%	10%	20%	25%	50%	100%	150%
the whole length is:	350 m									

5 Solve the problems in your exercise book. Estimate, calculate and check each result.

a) How much does Mr. Smith earn per month if £3599 goes into his bank account after 41% has been deducted in taxes from his **gross** income?

b) Mr. Smith spends 60% of his **net** income on household bills and food.
How much does he have left each month to spend on other things?

c) Mr. Smith saves 25% of the money he has left each month (after paying his household bills and food) for his family's yearly holiday.
How much does he save each year for the family holiday?

d) The original price of a holiday was increased by 25% and its new price is £960.
What was the original price of the holiday?

1

Write a plan. Estimate, calculate and check the result. Write the answer as a sentence.

a) 10% of an amount is £142.80. What is 93% of the same amount?

b) I am thinking of a number. $1\frac{3}{5}$ of my number is $15\frac{7}{15}$.

What is $2\frac{1}{4}$ times my number?

2

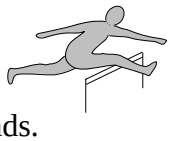
The mass of a solid object is 144.5 g and its volume is 17 cm^3.

a) What is the mass of 1 cm^3 of the material from which the object is made?

b) What is the mass of 1 m^3 of the same material?

3

In the *2003 Athletics World Championship* in Paris, **Felix Sanchez** (from the Dominican Republic) won the 400 m men's hurdles in a time of 47.25 seconds.



a) **Joey Woody** (from the USA) came second. His time was 1.0197 of the winner's time. What was Joey Woody's time?

b) **Periklis Iakovakis** (from Greece) was third in a time of 48.24 seconds. What percentage was this of the winner's time?

4

On the 1st of September 2003, these exchange rates were shown on teletext.
Fill in the missing rates. Use a calculator.

Key: £ = GBP (British Pound), € = Euro, $ = USD (Dollar),
JPY = Japanese Yen, CHF = Swiss Franc, SEK = Swedish Krona

£1 = 1.429 €	1$ = £ _____	1 JPY = £ _____
£1 = 1.567 $	1$ = _____ €	1 JPY = _____ €
£1 = 2.196 CHF	1$ = _____ CHF	1 JPY = _____ $
£1 = 13.111 SEK	1$ = _____ SEK	1 JPY = _____ CHF
£1 = 182.695 JPY	1$ = _____ JPY	1 JPY = _____ SEK

5

a) A factory smelts iron from iron ore. Iron makes up only 62% of iron ore. How much iron can the factory smelt from 25.7 tonnes of iron ore?

b) i) The original price of a machine was £700. The shop reduced the price by 10%, then cut the reduced price by 20%. What does the machine cost now?

ii) Another shop had the same machine and cut 20% off the £700 first, then cut 10% off the reduced price. Is the machine cheaper in this shop?

c) The price of a television was cut by 10%, then by 10% of the reduced price. The television now costs £243. What was its original price?

1 Practise addition and subtraction.

a) i) $\frac{5}{9} + \frac{2}{9} =$ ii) $\frac{8}{15} - \frac{3}{15} =$ iii) $4\frac{3}{7} + 2\frac{5}{7} =$ iv) $3\frac{2}{11} - 1\frac{5}{11} =$

b) i) $\frac{3}{4} + \frac{2}{3} =$ ii) $\frac{5}{6} - \frac{3}{4} =$ iii) $2\frac{7}{9} + 3\frac{1}{2} =$ iv) $4\frac{3}{8} - 2\frac{1}{4} =$

c) i) $0.5 + 0.2 =$ ii) $1.8 - 0.7 =$ iii) $12.3 + 5.86 =$ iv) $4.23 - 1.6 =$

2 Practise multiplication and division.

a) i) $\frac{4}{3} \times 5 =$ ii) $14 \times \frac{2}{7} =$ iii) $\frac{4}{3} \div 5 =$ iv) $\frac{8}{9} \div 4 =$

b) i) $1\frac{3}{4} \times 3 =$ ii) $12 \times 4\frac{2}{5} =$ iii) $1\frac{1}{8} \div 3 =$ iv) $2\frac{5}{8} \div 5 =$

c) i) $0.6 \times 4 =$ ii) $0.6 \div 4 =$ iii) $2.7 \div 3 =$ iv) $2.7 \times 3 =$

d) i) $\frac{4}{5} \times \frac{1}{2} =$ ii) $\frac{4}{5} \div \frac{1}{2} =$ iii) $\frac{6}{5} \times \frac{5}{8} =$ iv) $\frac{6}{5} \div \frac{5}{8} =$

e) i) $3 \div \frac{4}{5} =$ ii) $2\frac{1}{5} \times 5\frac{1}{2} =$ iii) $9 \div 3\frac{2}{3} =$ iv) $5\frac{1}{7} \div 3\frac{5}{14} =$

f) i) $0.8 \times 0.3 =$ ii) $2.4 \div 0.3 =$ iii) $11.4 \times 0.7 =$ iv) $0.84 \div 1.2 =$

3

a) Calculate: $\left(14\frac{3}{4} - 9\frac{4}{5}\right) \div 1\frac{1}{7} =$

b) Which decimal is an equal distance from both $-2\frac{1}{2}$ and $\frac{1}{2}$ on the number line?

c) What is the price of 1 kg of apples if the price of $2\frac{1}{2}$ kg is £3.20?

d) Linda had £500 in her bank account. She spent 18% of it.
How much money does she have left?

4

a) I had £2000. First I spent 2 fifths of it, then I spent 3 quarters of what was left.
How much money do I have now?

b) The sum of 1 third of my money and half of my money is £1400.
How much money do I have?

c) Two thirds of my money is the same as 3 quarters of Joe's money.
If Joe has £2400, how much do I have?

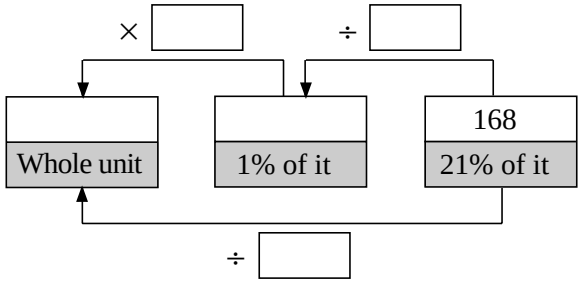
5 Solve the equations.

a) $1\frac{2}{5} + x = 4$ b) $y - 2.91 = 3.3$ c) $u \times \frac{2}{3} = 1\frac{3}{4}$

d) $v \div 1.5 = 6.3$ e) $4\frac{1}{5} \div t = 6\frac{2}{5}$ f) $2 \times z + 3 \times z = 12.5$

1

If 21% of an amount is 168, what is the whole amount? Fill in the missing numbers.



2

Complete the table to show the different percentages of 10 hours in hours, minutes and seconds.

10 hours	1%	5%	10%	25%	50%	75%	100%	200%
in hours	$\frac{1}{10}$							
in minutes	6							
in seconds	360							

3

Solve these problems in your exercise book.

a) What is $\frac{5}{6}$ of 45.6 kg? b) What is 70% of 45.6 kg?

c) $\frac{5}{8}$ of a quantity is 450 m. What is the whole quantity?

d) 62.5% of a quantity is 450 m. What is the whole quantity?

4

In your exercise book, calculate the **whole quantity** if:

a) 25% of it is £81 b) $66\frac{2}{3}$% of it is 120 kg c) 125% of it is 12.5 km

d) 200% of it is £47 e) 19% of it is 95 m f) 140% of it is 210 km

5

Solve the equations in your exercise book.

a) $2\frac{3}{4} + x = 5$ b) $y + 2.81 = 3.21$ c) $u \times \frac{4}{3} = 6\frac{2}{3}$

d) $v \div 0.5 = 4.7$ e) $2\frac{1}{4} \div t = 6\frac{3}{4}$ f) $3 \times z + 0.5 \times z = 1.4$

6

Decode this secret message.

JRQH WR ZDWFK JODGLDWRUV. EDFN DW VHYHQ