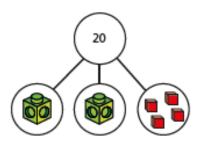
White Rose Answers (Year 6)

Monday

Solve two-step equations



Here is a part-whole model.

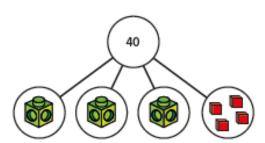


a) Write an equation for the part-whole model.

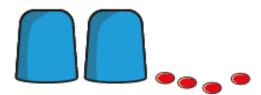
b) Solve the equation to work out the value of



If each multilink cube represents x, form and solve an equation to find the value x.



There is the same number of counters under each cup. There are 16 counters in total.



a) Use y to represent the number of counters under each cup. Write an equation in terms of y.

b) Solve the equation to find the value of y.

c) How many counters are under each cup?



Write an algebraic equation to represent each bar model. Find the values of a and b.

a)		21	
	а	а	9

b)	46	
	3 <i>b</i>	10

Solve the equations.

d)
$$9 = 2y + 8$$

b)
$$3x - 3 = 9$$

e)
$$10g - 2 = 46$$

c)
$$4p - 11 = 3$$

f)
$$4 + 3y = 28$$

Dani thinks of a number.

She doubles it and adds 3

She gets the answer 15

a) Write an equation to represent Dani's problem.

b) Solve the equation to find her number.



Alex is y years old.

Her friend Brett is 3 years older.

The total of their ages is 25

How old are Alex and Brett?

Alex is

Brett is





a) Work out the cost of one banana and one orange.

One banana costs

One orange costs

280

b) Compare methods with a partner.

Tuesday

Find pairs of values (2)



Class 6 are trying to solve a number puzzle.



a)



The triangle could be 3 and the circle could be 4

Dexter

Do you agree with Dexter? 400

Explain why.

b)



What is the value of the circle in Dora's number puzzle?

c) Find other pairs of values that the triangle and circle could equal. Find three pairs.









a and b are whole numbers.

$$2a + b = 14$$

Complete the table to show different possible values for a and b.

а	0	1	2	3	4	5	6	7
2α	0	2	4	6	8	10	12	¥
b	14	12	10	8	6	4	2	0
2 a + b	14	14	14	14	الر	lų	IJ	14

c and d are both integers less than 15 but greater than zero.

$$3c - d = 2$$

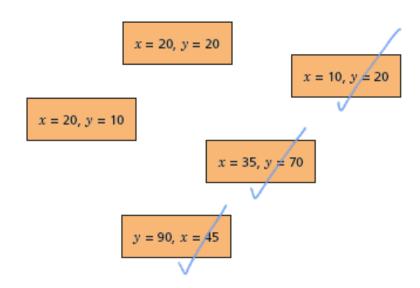
Complete the table to show different possible values for \emph{c} and \emph{d} .

с	1	2	3	4	5
3 <i>c</i>	3	٩	σ	12	15
d	1	4	7+	0	13
3c - d	2	2	2	a	2

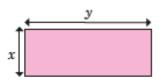
b) Explain why there are no other possible values for c and d.

15 C	was	16	ck	Murow	100	areaker
						U
than 1	5					

x and y are both multiples of 5 less than 100 If 2x = y, circle the possible values of x and y.



5 Here is a rectangle.
x and y are both integers.



The rectangle has a perimeter of 28 cm.

a) Write an equation to represent the perimeter of the rectangle.

b) List all the possible pairs of values for x and y.

$$x = 1$$
 $y = 13$ $x = 5$ $y = 9$
 $x = 2$ $y = 13$ $x = 6$ $y = 8$
 $x = 3$ $y = 11$
 $x = 4$ $y = 60$

Compare answers with a partner. How do you know you have found all the possible values?



Aisha is buying some stationery for school.

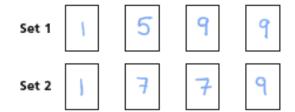
She spends exactly £1

List the possible combinations of pencils and pens that Aisha could have bought.

2 pers & 7 percits
4 pers & 4 percits

- Ron has four digit cards.
 - Two of the cards have the same value.
 - All of the cards are less than 10 but greater than zero.
 - All of the cards are odd.
 - The sum of the four cards is 24

Find two possible sets of cards.





a) Find a pair of possible values for a and b.

$$a = \begin{bmatrix} b \end{bmatrix}$$
 $b = \begin{bmatrix} b \end{bmatrix}$

b) Work with a partner to find as many pairs of values as you can.

Wednesday

Convert metric measures



How many centimetre cubes can you fit along a metre stick?



100

What does this tell you?



grams in 1 kilogram.

There are

a) There are

kilograms in one tonne.

- b) There are

millilitres in 1 litre.

- c) There are

millimetres in 1 centimetre

- There are
- 100

centimetres in 1 metre.

- There are

metres in 1 kilometre.



Complete the bar models.

a)

1 km	1 km	1 km	1 km
1,000 m	1,000 m	1,000 m	1,000m

There are 4,000

m in 4 km.

b)

1 kg	1 kg	1 kg	1 kg	1 kg	1 kg	1/2 kg
1,000 g	1,000 g	1,000 g	(,0009	(,000g	1,000	Soog

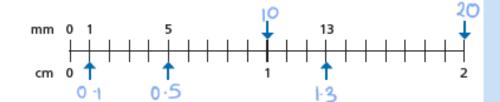
There are

Complete the conversions.

A bag of dog food weighs 2.5 kg. Write this weight in grams.



What measurements are the arrows pointing to? Label them on the number line.



Complete the conversions.

Write > , < or = to complete the statements.

- b) 5.1 l

- 10.1 mm

Dora and Amir are trying to convert 1.05 metres into millimetres.



You can multiply 1.05 by 100 to convert it into centimetres, then multiply the product by 10 to convert it into millimetres.

Dora

You can just multiply 1.05 by 1,000!



Amir

Who do you agree with? Explain your thinking.

What is the mass of one of the boxes? Give your answer in grams.



2509

- There are 1,000 kg in one tonne.
 - a) How many grams are there in one tonne?

,000,000

b) A car weighs 1.3 tonnes. Write the weight of the car in grams.

,300,000

Thursday

Miles and kilometres



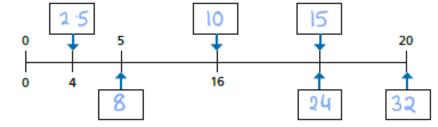
Tick the statements that are true.

Use the bar model to help you.

1 mil	e		1 mile	1 m	ile		1 mile		1 mile		
1 km	1 k	m	1 km	1 km	1 kn	n	1 km	1	l km	1 km	

- a) 5 miles is approximately equal to 8 kilometres. 🗹
- b) 1 mile is longer than 1 kilometre. 🗹
- c) 2 kilometres is longer than 1 mile. 🗹
- d) 2 kilometres is longer than 2 miles.
- Fill in the missing numbers on the number line.

miles



- Complete the conversions.
 - a) 5 miles = 8 kilometres
 - 10 miles = |6 kilometres
 - 15 miles = 24 kilometres
- b) | | miles = 16 kilometres
 - mile = 1.6 kilometres
 - 0.5 miles = 0.8 kilometres

- Complete the conversions.
 - a) 100 miles = 160 km
- d) 95 miles = 152 km
- b) 45 miles = 72 km
- e) 7.5 miles = 12 km
- c) 400 = 640 km
- f) 2 miles = 3·2 km

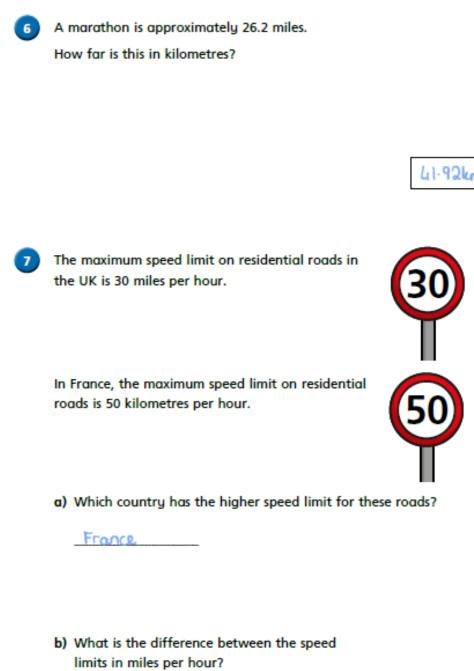


If 5 miles is approximately 8 kilometres, then 10 miles is approximately 13 kilometres.

Here is Whitney's working out.

+ 5
$$\int_{10 \text{ miles}}^{5 \text{ miles}} \approx 8 \text{ km}$$
 \downarrow + 5

Explain Whitney's mistake.





8	Esther cycles 7 0 miles over 4 days. On day 1 she cycles 14 miles. On day 2 she cycles 32 km. On day 4 she cycles twice as far as she does on day 3 How far does she cycle on day 4? Give units with your answer.	
		6 miles
_		
9	Use a map of your local area. Various answers	
	Find something that is approximately: a) 1 mile away from your school	
	b) 1 km away from your school	
	c) 5 miles away from your school	
	d) 5 km away from your school	
	Compare answers with a partner.	

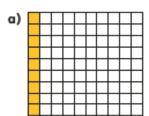
White Rose Answers (Year 5)

Monday

Understand percentages

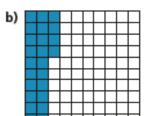


Complete the sentence for each diagram.



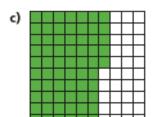
There are parts out of a hundred shaded.

This is 9 %



There are Q L parts out of a hundred shaded.

This is 24 %



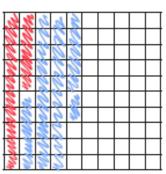
There are 65 parts out of a hundred shaded.

This is 65 %

Complete the table.

Hundred square	Percentage
	15%
	63°4
	82%

Shade 15% of the hundred square red.
Shade 32% of the hundred square blue.



What percentage of the hundred square is not shaded?

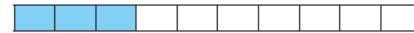
4	a)	ls	1%	of	this	bar	model	shaded?	No.

1%					

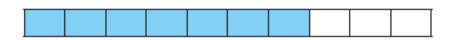
Explain your reasoning.



b) What percentage of each bar model is shaded?









The plane has 100 seats.

- a) 10% of the seats are already full.
 - How many passengers are already on the plane?



b) 15% of the seats have not been booked.

How many seats have been booked?



c) How many passengers still need to board the plane?

75

Dexter has £1 to spend.

He buys some stickers.







Aisha and Brett have been selling tickets for the school play.

There are 100 seats available.

- On Monday they sold 34% of the tickets. (34)
- On Tuesday they sold 42 tickets.
- By the end of Wednesday, 95% of the tickets had been sold. (9

How many tickets did they sell on Wednesday?

On Wednesday they sold | 9 tickets.

Shade 85% of this bar model.



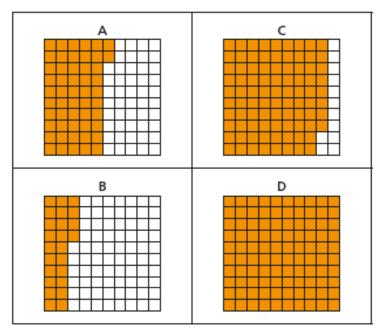
Compare answers with a partner.

Tuesday

Percentages as fractions and decimals



Here are four hundred squares.

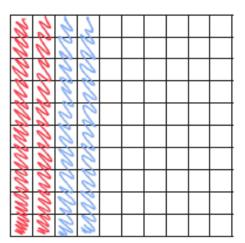


Complete the table.

Hundred square	Percentage	Fraction	Decimal
А	52 %	<u>52</u> 100	0.52
В	2 և °/.	<u>24</u> 100	0 -2 կ
С	88.1.	100 88	0.88
D	100 16	100	l

Prove that 0.2 is equal to 20%.

You may use the hundred square to help you.



$$0.2 = 2 \text{ boths} = \frac{2}{19} = \frac{20}{190}$$

$$20\% = \frac{20}{190}$$

Why do you think some people think that 0.2 is equal to 2%?

Complete the fraction, decimal and percentage equivalents.

a)
$$32\% = \frac{32}{100} = 0.32$$

- Write <, > or = to complete the statements.
 - a) 50% $\sqrt{}$ $\frac{5}{10}$
- d) $\frac{40}{100}$ ($\frac{2}{3}$) 40%
- b) 25% < 50 100
- e) $\frac{70}{100}$ $\left(\begin{array}{c} 7 \\ 7 \end{array} \right)$ 7%
- c) 14% $\left(\begin{array}{c} 41 \\ 100 \end{array}\right)$
- f) 82% $\left(\begin{array}{c} \\ \\ \end{array}\right) \frac{82}{100}$
- Write the values in order from smallest to greatest.
 - a) 33% = 3
- 00
- 3%
- 100
- 3 % 13 30 33 %
- b) 299% 91 9% 9
 - 9%, 9, 100, 249%
- c) 2.5 $\frac{25}{100}$ 250 25% of 100 $\frac{25}{1000}$

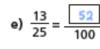


- 6 Convert the fractions to hundredths.
 - Complete the decimal and percentage equivalents.

a)
$$\frac{150}{300} = \frac{50}{100} = \frac{50}{50} = \frac{50}{50}$$

b)
$$\frac{25}{500} = \frac{5}{100} = 0.05 = 5$$

c)
$$\frac{48}{300} = \frac{16}{100} = 0.16 = 16$$
 %





10 50





30 80 <u>1</u> 50



Jack and Dora go shopping with the same amount of money. Jack spends $\frac{1}{3}$ of his money.

Dora spends 30% of her money.

a) Who spends more money? <u>Jake</u>

Use fraction and percentage equivalence to explain your answer.

$$\frac{1}{3} = \frac{10}{30}$$

$$30\% = \frac{3}{10} = \frac{9}{30}$$

b) Jack and Dora each started with £300 How much money do they each have left?

Jack <u>£200</u>

Dora



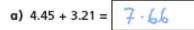
Wednesday

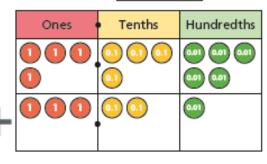
Adding decimals with the same number of decimal places



Complete the additions.

Use the place value charts to help you.





	4 .	4	5	
+	3 .	2	1	
	7 ·	6	6	

Ones	Tenths	Hundredths
00	100	000
00	00	00
00	000	0
0 05	(000)	

	4 .	4	5	
+	3 .	6	1	
	8	0	6	
	1			

	Ones	Tenths	Hundredths
	00	000	000
+	000	0000	000

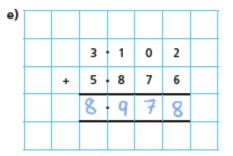
	4 .	4	5	
+	3 .	7	8	
	8	2	3	
	1	(

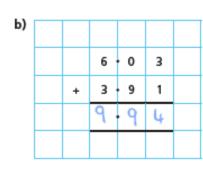
Which calculation was easier? Talk about it with a partner.

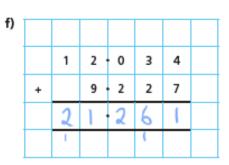


Use the column method to work out the additions.

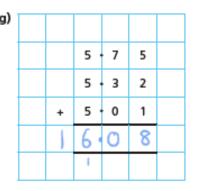
)				
		5	. 3	
	+	2 -	- 5	
		7	8	

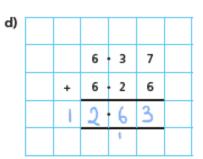


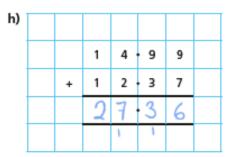




c)						
			2 -	. 3	2	
	+	1	0	1	7	
		-	2	4	9	







Work out the calculations.

Write <, > or = to make the statements correct.

Teddy is working out the total cost of these items.



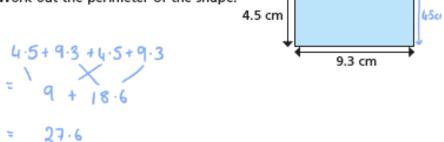


Here are his workings.

Talk to a partner about Teddy's mistake.

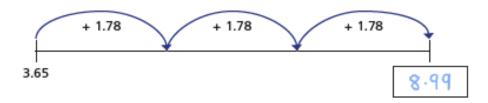
Work out the correct answer.



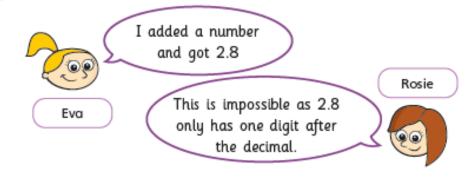


9.3cm

Complete the number line.



Eva starts with the number 1.62



Is Rosie correct? No

Talk about it with a partner.

Thursday

Adding decimals with a different number of decimal places



Ron is adding 1.4 and 2.53

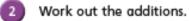
He makes each number with counters.

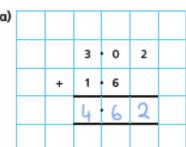
Ones	Tenths	Hundredths
•••		

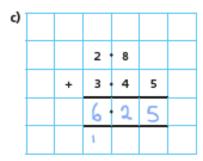
a) What is the answer to Ron's calculation?

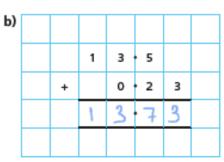
3.93

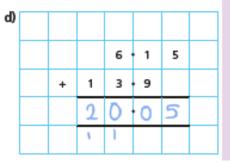
- b) Explain your method to a partner.
- c) Did you have to make an exchange? No











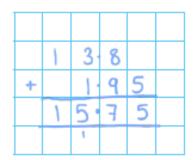
Filip is adding two numbers together.

He writes it as a column addition.

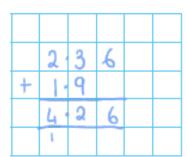
a) What mistake has Filip made?

	He	haprit	correctly	lined	uρ	his	numbers
_			J				
	ώ	the	columns.				

b) Use the column method to work out the correct answer.



Use the column method to work out the additions.



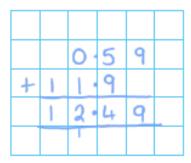
U)	14.02	. + 3	.,	

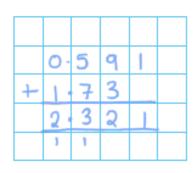
h) 1482 ± 27

١	4.	8	2	
	3.	7		
1	8.	5	2	
	l.			

- Use the column method to work out the additions.
 - a) 0.59 + 11.9

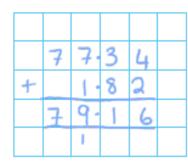
c) 0.591 + 1.73

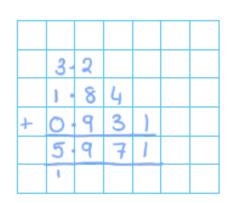




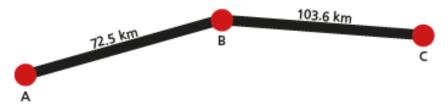
b) 77.34 + 1.82

d) 3.2 + 1.84 + 0.931





Mr Hall drives from point A to point B, then on to point C.



What is the total distance that Mr Hall drives?

Here are four number cards.

3.8

4.19

0.72

11.46

a) What is the greatest total you can make by adding two of the numbers?

Complete the calculation.

b) What is the sum of the four numbers?

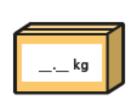
20.17

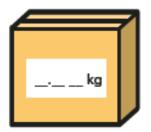
Work out the missing digits.

b)
$$4.85 + \frac{7}{4} \cdot \frac{8}{10} = 12.65$$

The total mass of the two boxes is 10.85 kg.

What could the mass of each box be? Various answers.





How many answers can you find?

Dip and Pick 20 Answers

Chocolate = 180g + 150g sugar = 330g

 $4 \times 330g = 1320g$

Milk 750ml + 600ml cream = 1350ml

 $4 \times 1350g = 5400ml$

 $4 \times 6 = 24 \text{ eggs}$

Suzie can make 4 times the amount of chocolate ice-cream.

One possible approach...

Suzie only has 1 egg, what proportion of the other ingredients would she need?

How much of each ingredient would she have?

2 scoops of vanilla
2 scoops of chocolate
2 scoops of strawberry
IV + IS IV + IC IS + IC
6 combinations.

No of ice-cream flavours	No of combinations
1	1
2	3
3	6
4	10
5	15
6	21

Describe the pattern or rule.

500ml of milk = $\frac{2}{3}$ of 750ml of milk

³ of 150g of sugar = 100g

500ml of milk = $\frac{2}{3}$ of 750ml of milk $\frac{2}{3}$ of 150g of sugar = 100g $\frac{2}{3}$ of 180g of chocolate = 120g

100g + 120g = 220g of sugar and chocolate in total.

100g + 120g = 220g of sugar and chocolate in total.

9 eggs = $1\frac{1}{2}$ times the quantity.

Suzie would need

 $1^{\frac{1}{2}} \times 180g$ of chocolate = 270g

 $1^{\frac{1}{2}}$ x 150g of sugar = 225g

She is correct for the amount chocolate but wouldn't have enough sugar.

Reading Answers

1.
Six million people
2.
Gentle warm-up
Before each activity
5 minutes
Start by walking any amount that feels comfortable
10-30 minutes
Short running intervals to begin including
1 or 2 minutes
Cool down by walking or gently stretching
5-10 minutes
3.
Gradually means slowly or a little at a time
4.
Set yourself regular targets
Run with a friend or group
Run once every week
Mix up routes and distances
5.
One of the following:
Route
Distance
Time

How you felt
6.
Track running
Over specified distances on an oval running track
Road running
Safely on pavements or in events where roads are closed to all vehicle traffic
Cross Country Running
Over open or rough terrain which may include grass, mud, woodlands, hills or water
7.
The section is about 'road running' so the author is trying to keep the runner safe
8.
13.1 miles
9.
Reduce the risk of injury
Avoid slipping and sliding that can lead to blisters
Reduce amount of shock that travels up your leg
10.
Digital sports watch or heart rate monitor
11.
To help children view running as an enjoyable activity
12.
Rewarding
13.
Running is free/ doesn't have to cost anything

You can do it almost anywhere
Has many potential health benefits (e.g. improve fitness, reduce illness, maintain healthy lifestyle)
Exciting challenge
Doesn't have to require much equipment
Can be rewarding and enjoyable (without any competition)
14.
Includes a beginner's guide
'if you've never been a runner'/ 'if you're totally new to running'
Provides advice on starting by just walking
Gives guidance on equipment required to get started
15.
Sheep, cows and squirrels
16.
Branches of a tree
17.
To emphasise the author's suggestion of a lack of time/ that people are too busy
18.
Streams reflecting sunlight in the day/ water sparkling with light as it moves or flows
The poet is comparing the stream in the daytime to the stars at night
19.
Full of care
20.
A capital letter is used for the word 'Beauty' to show personification/ the author refers to 'Beauty' as a name or person/ 'Beauty' is the name that the poet is giving to nature

21.
Sheep or cows
Stand and stare
Squirrels
Hide nuts in grass
Beauty
Dance and smile
22.
People are too busy
That people should make time to appreciate nature
Life is not as good if we do not mane time to enjoy the natural surroundings
23.
'Leisure' means free time or time spent away from working. The poem refers to views of nature that are usually only appreciated during free time when not at work. The poet suggests we should make more free time or 'leisure' time to appreciate nature.
24.
'Pa complained of the aches in his back and the tingles in his toes'
'Since Pa had injured his back'
25.
Contraptions
26.
Goods
27.
Any three of the following:
She cooks breakfast for the family she reminds the little ones to bow their heads
She walks the children to school

She works as a laundress to earn money
Or you could have chosen a direct quote from the text such as '(h)er family depended on her'
28.
Sabryna had never travelled to the next village false
The children learned about alchemy at school true
Sabryna wished that she could wear a colourful gown true
29.
1. Sabryna heated bread and pottage for the family for breakfast
2. Pa said a prayer before they ate
3. The family ate breakfast
4. Sabryna walked her brothers and sisters to school
5. Farmhands and blacksmiths worked in the village
30.
Accept answers which are justified with evidence from the text, such as 'I think that she felt jealous/ envious/ inferior ('Sabryna wished that she could afford a colourful gown too'); 'I think that she was fascinated by them because it says that she 'gazed' at them'; I think that she didn't want them to see her looking ('Sabryna bowed her head to disguise her gaze').
31.
Barl, Sana and Dia are three clay figures/ figurines of spirits to whom the family pray.
32.
'the Strongarms' shrine was five times as elaborate as the one that Sabryna's family had at home'
Or
'Her necklace hung with expensive wards against hardship and hunger.'

She tells the children to work hard

Or

'Mr and Mrs Strongarm ran the biggest farm in the village'

33.

Any definition of the word 'bustled' such as; 'The village was full of excited energy and movement'

34.

Answers which refer to the idea that the bread is an offering to a god or spirit, a sign of respect to be rewarded with their blessing

35.

An answer which;

Makes a statement about Sabryna's personality e.g., 'I think that Sabryna is a very sensible and polite girl'

Gives to pieces of evidence to support the statement e.g. 'Sabryna takes responsibility for her siblings getting to school and reminds them not to be rude to the teacher, and she remembers to say 'thank you' to Mrs Strongarm'

36.

Answers which refer to both of the following;

If the river levels are too low, Sabryna won't be able to do her job as laundress

If she cannot work, she won't earn money and the family will be even poorer/ the family may struggle to buy food/ the family will have even less money to pay for school.