


Year 5/6  
Maths  
Booklet 6

|   |   |
|---|---|
| Date  |   |
| Subject/s   | Maths   |
| Learning Objective<br> | To recall and use multiplication and division facts |

1)  $7 \times 2 = \underline{\quad}$

2)  $3 \times 8 = \underline{\quad}$

3)  $4 \times 6 = \underline{\quad}$

4)  $2 \times 9 = \underline{\quad}$

5)  $6 \times 4 = \underline{\quad}$

6)  $8 \times 4 = \underline{\quad}$

7)  $7 \times 5 = \underline{\quad}$

8)  $9 \times 10 = \underline{\quad}$

9)  $6 \times 6 = \underline{\quad}$

21)  $8 \times 6 = \underline{\quad}$

22)  $7 \times 9 = \underline{\quad}$

23)  $6 \times 7 = \underline{\quad}$

24)  $8 \times 8 = \underline{\quad}$

25)  $6 \times 3 = \underline{\quad}$

26)  $9 \times 6 = \underline{\quad}$

27)  $7 \times 5 = \underline{\quad}$

28)  $8 \times 9 = \underline{\quad}$

29)  $10 \times 7 = \underline{\quad}$

1)  $6 \times \underline{\quad} = 18$

2)  $8 \times \underline{\quad} = 16$

3)  $\underline{\quad} \times 7 = 7$

4)  $\underline{\quad} \times 9 = 45$

5)  $7 \times \underline{\quad} = 21$

6)  $\underline{\quad} \times 6 = 36$

7)  $\underline{\quad} \times 8 = 40$

8)  $9 \times \underline{\quad} = 90$

9)  $\underline{\quad} \times 8 = 32$

10)  $\underline{\quad} \times 6 = 24$

11)  $7 \times \underline{\quad} = 63$

12)  $\underline{\quad} \times 6 = 0$

13)  $\underline{\quad} \times 8 = 80$

14)  $9 \times \underline{\quad} = 54$

15)  $6 \times \underline{\quad} = 42$

16)  $\underline{\quad} \times 8 = 56$

17)  $\underline{\quad} \times 9 = 81$

18)  $6 \times \underline{\quad} = 30$

19)  $8 \times \underline{\quad} = 48$

20)  $\underline{\quad} \times 9 = 18$

21)  $\underline{\quad} \times 7 = 49$

22)  $8 \times \underline{\quad} = 72$

23)  $\underline{\quad} \times 6 = 48$

24)  $9 \times \underline{\quad} = 45$

25)  $\underline{\quad} \times 7 = 63$

26)  $6 \times \underline{\quad} = 36$

27)  $8 \times \underline{\quad} = 64$

28)  $\underline{\quad} \times 6 = 42$

29)  $\underline{\quad} \times 9 = 72$

30)  $7 \times \underline{\quad} = 56$

31)  $\underline{\quad} \times 8 = 48$

32)  $6 \times \underline{\quad} = 60$

33)  $9 \times \underline{\quad} = 45$

34)  $\underline{\quad} \times 8 = 72$

35)  $\underline{\quad} \times 7 = 28$

36)  $9 \times \underline{\quad} = 81$





37)  $\underline{\quad} \times 6 = 6$

38)  $\underline{\quad} \times 8 = 64$

39)  $7 \times \underline{\quad} = 49$

40)  $\underline{\quad} \times 9 = 54$

## Steps to Success

|   |   |   |   |
|---|---|---|---|
| Date  |   |   |   |
| Subject/s   | <u>Maths</u>  |   |   |
| Learning Objective  | To find the mean  |   |   |
|                          |   |   |   |
|   |   | SA<br> | TA<br> |
| Success Criteria<br><br> | I know the mean is a type of average  |   |   |
|   | I know the mean is found by finding the total and dividing by how many parts/people there are |   |   |
|   | I can use the inverse to find original amounts  |   |   |
| Support   | Independent   | Adult Support ( )   | Group Work  |

Pre-task:

Calculate the mean number of crayons:

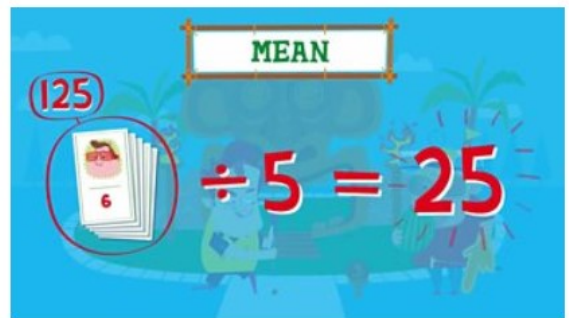
| Crayon colour | Amount |
|---------------|--------|
| Blue          | 14     |
| Green         | 11     |
| Red           | 10     |
| Yellow        | 9      |

If Jack had three pairs of shoes, Alice had 4 pairs of shoes. How many did Fatima have if the mean is 3? Explain how you worked it out.

## Teacher Led

<https://corbettmaths.com/2012/08/02/the-mean/>

**The mean is the total of the numbers divided by how many numbers there are.**



- To find the mean, add all the numbers together then divide by the number of numbers.
- Eg  $6 + 3 + 100 + 3 + 13 = 125 \div 5 = 25$
- The mean is 25.

The mean is not always a whole number.

10, 8, 10, 8, 8, 4

To find the mean of the above numbers I need to find the total.

$$10 + 8 + 10 + 8 + 8 + 4 = 48$$

Then divide the total by how many numbers there are

$$48 / 6 = 8$$

$$\text{Mean} = 8$$

<https://www.youtube.com/watch?v=XXlgx7oeTpQ&safe=active>

Abby has the following data:

14 v 14 14 15

If the mean is 12, which number could v be?

To find out the missing value, when you already know the mean, you need to think about how you would find the mean and then do it in reverse.

If I was finding the mean of these numbers I would add them all up and divide them by how many there are.

$$14 + v + 14 + 14 + 15 = \text{Total}$$

$$\text{Total} / 5 = 12$$

I now need to think what must the total be, if you divide it by 5 and get 12. The total must be 60. I can then use this to find the missing number.

$$14 + v + 14 + 14 + 15 = 60$$

$$57 + v = 60$$

$$v = 3$$

## Fluency

|   |   |
|---|---|
| 1) 23, 15, 8, 12, 26, 5, 22,<br>9<br><br>Mean = <input type="text"/>                    | 2) 81, 69, 72, 80, 67, 62, 78,<br>74, 71, 86<br><br>Mean = <input type="text"/>         |
| 3) 54, 38, 52, 51, 49, 46, 39,<br>53, 47, 42, 52, 41<br><br>Mean = <input type="text"/> | 4) 25, 36, 34, 17, 22, 31, 38,<br><br>Mean = <input type="text"/>                       |
| 5) 61, 45, 52, 48, 53, 49, 57,<br>46, 60, 54, 58<br><br>Mean = <input type="text"/>     | 6) 19, 23, 26, 22, 31, 33, 29,<br>21, 30<br><br>Mean = <input type="text"/>             |
| 7) 95, 88, 79, 93, 82, 90, 94,<br>85, 91, 83<br><br>Mean = <input type="text"/>         | 8) 57, 32, 45, 38, 42, 54, 51,<br>39, 47, 43, 36, 56<br><br>Mean = <input type="text"/> |
| 9) 36, 47, 35, 28, 23, 32, 49,<br>46<br><br>Mean = <input type="text"/>                 | 10) 78, 82, 80, 65, 69, 72, 79<br><br>Mean = <input type="text"/>                       |

1) Find the mean of the following weights:

6kg, 8kg, 7kg, 6kg, 8kg, 13kg,

2) Find the mean of the following times:

13s, 20s, 27s, 30s, 25s, 28s, 30s, 35s

3) The mean of three numbers is 7. Two of the numbers are 6 and 12. What is the third?

4) The mean of four numbers is 5. Three of the numbers are 3, 5, and 8. What is the fourth?

5) The mean of three numbers is 10. One of the numbers is 12.

Write down what the other two numbers could be.

Write down another pair of numbers that are possible.

6) A set of five numbers has a mean of 10

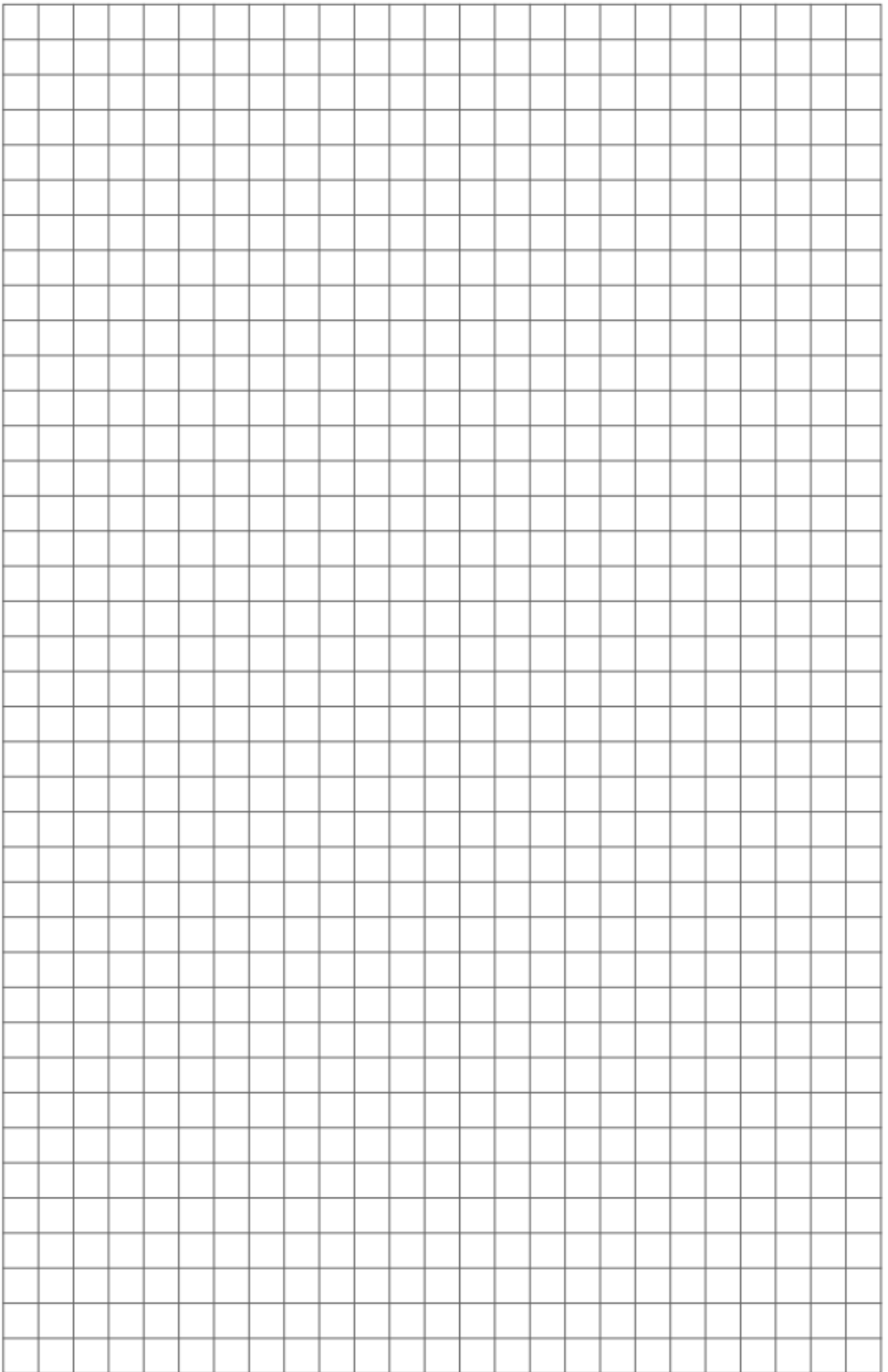
What could the 5 numbers be?

7) Three numbers have a mean of 23

Two of the numbers have a mean of 12

Two of the numbers have a mean of 30

What are the three numbers?



## Problem solving and reasoning

Use it!



The mean number of goals scored in 6 football matches was 4.

Use this information to calculate the missing number of goals:

| Match number | Number of goals |
|--------------|-----------------|
| 1            | 8               |
| 2            | 4               |
| 3            | 6               |
| 4            | 2               |
| 5            | 1               |
| 6            | .....           |

The mean number of goals scored by 3 teams was 2. How many could each team have scored? Can you find at least 10 possible solutions?



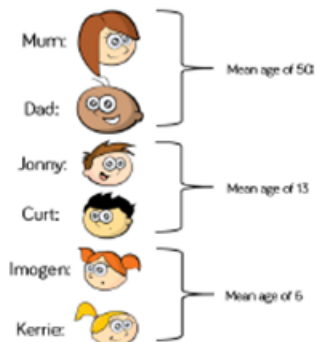
Use it!



Work out the age of each member of the family if:

Mum is 48 years old.

Jonny is 4 years older than Curt and 7 years older than Imogen.



Calculate the mean age of the whole family.

### Further Challenge



There are four unknown numbers.

The mean of the first two numbers is 4.

The mean of the first three numbers is 9.

The mean of all four numbers is 15.

If one of the four numbers is 2, what are the others?

## Fluency Answers

|  |  |
|--|--|
| 1) 23, 15, 8, 12, 26, 5, 22,<br>9<br>Mean = <input type="text" value="15"/>                    | 2) 81, 69, 72, 80, 67, 62, 78,<br>74, 71, 86<br>Mean = <input type="text" value="74"/>         |
| 3) 54, 38, 52, 51, 49, 46, 39,<br>53, 47, 42, 52, 41<br>Mean = <input type="text" value="47"/> | 4) 25, 36, 34, 17, 22, 31, 38,<br>Mean = <input type="text" value="29"/>                       |
| 5) 61, 45, 52, 48, 53, 49, 57,<br>46, 60, 54, 58<br>Mean = <input type="text" value="53"/>     | 6) 19, 23, 26, 22, 31, 33, 29,<br>21, 30<br>Mean = <input type="text" value="26"/>             |
| 7) 95, 88, 79, 93, 82, 90, 94,<br>85, 91, 83<br>Mean = <input type="text" value="88"/>         | 8) 57, 32, 45, 38, 42, 54, 51,<br>39, 47, 43, 36, 56<br>Mean = <input type="text" value="45"/> |
| 9) 36, 47, 35, 28, 23, 32, 49,<br>46<br>Mean = <input type="text" value="37"/>                 | 10) 78, 82, 80, 65, 69, 72, 79<br>Mean = <input type="text" value="75"/>                       |

1) 8kg

2) 26s

3)  $21 - 18 = 3$

4)  $20 - 16 = 4$

5) Total = 30

18 remaining – any pair of numbers that add to make 18

6) Any possibilities where the 5 numbers add to make 50

7) 9, 15, 45

## Problem Solving and Reasoning Answers

Answer: The missing number of goals is 3.

Possible solutions for each team:

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6 | 0 | 0 | 5 | 0 | 1 | 4 | 0 | 2 | 4 | 1 |
| 2 | 0 | 6 | 0 | 1 | 5 | 0 | 2 | 4 | 0 | 1 | 4 |
| 3 | 0 | 0 | 6 | 0 | 1 | 5 | 0 | 2 | 4 | 1 | 1 |

Mum: 48



Dad: 52



Jonny: 15



Curt: 11




Imogen: 8



Kerrie: 4





|   |   |
|---|---|
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| Learning Objective<br> | To recall and use multiplication and division facts |

$3 \times 4 =$

$7 \times 8 =$

$9 \div 3 =$

$36 \div 12 =$

$21 \div 7 =$

$8 \times 6 =$

$12 \times 4 =$

$10 \times 8 =$

$4 \times 8 =$

$3 \times 9 =$

$4 \times 7 =$

$3 \times 11 =$

$40 \div 8 =$

$15 \div 3 =$

$27 \div 9 =$

$20 \div 4 =$

$4 \times 11 =$

$48 \div 6 =$

$8 \div 4 =$

$6 \times 8 =$

$5 \times 8 =$

$11 \times 3 =$

$5 \times 8 =$

$80 \div 10 =$

$24 \div 4 =$

$88 \div 11 =$

$24 \div 3 =$

$4 \times 1 =$

$72 \div 8 =$

$8 \times 4 =$

$9 \times 4 =$

$8 \times 5 =$

$10 \times 3 =$

$16 \div 4 =$

$8 \times 11 =$

$6 \times 4 =$

$5 \times 4 =$

$32 \div 8 =$

$6 \div 3 =$

$3 \div 3 =$

$12 \div 3 =$

$3 \times 6 =$

$48 \div 12 =$

$44 \div 11 =$

$4 \times 9 =$

$8 \div 8 =$

$3 \times 4 =$

$7 \times 3 =$

$11 \times 8 =$

$4 \times 3 =$

$0 \times 8 =$

$12 \times 8 =$

$3 \times 12 =$

$48 \div 8 =$

$18 \div 3 =$

$28 \div 4 =$

$24 \div 8 =$

$30 \div 10 =$

$3 \times 3 =$

$56 \div 7 =$

$27 \div 3 =$

$8 \times 9 =$

$64 \div 8 =$

$4 \times 12 =$

$7 \times 4 =$

$10 \times 4 =$

$36 \div 4 =$

$5 \times 3 =$

$36 \div 9 =$

$16 \div 8 =$

$8 \times 8 =$

$56 \div 7 =$

$56 \div 8 =$

$8 \times 3 =$

$21 \div 3 =$

$4 \times 6 =$

$3 \times 0 =$

$72 \div 9 =$

$4 \times 12 =$

$32 \div 4 =$

$12 \div 4 =$

$3 \times 8 =$

$96 \div 12 =$

$12 \times 3 =$

$33 \div 3 =$

$4 \times 4 =$

$24 \div 8 =$

$7 \times 8 =$

$6 \times 3 =$

$9 \times 8 =$

$2 \times 3 =$

$9 \times 3 =$

$40 \div 4 =$

$4 \div 4 =$

$11 \times 4 =$

$21 \div 3 =$

$28 \div 7 =$

$3 \times 7 =$

$32 \div 8 =$

$8 \times 12 =$

### Steps to Success

|                    |  |
|--------------------|--|
| Date               |  |
| Subject/s          | <u>Maths</u>                           |
| Learning Objective | To use line graphs to convert measures |



SA



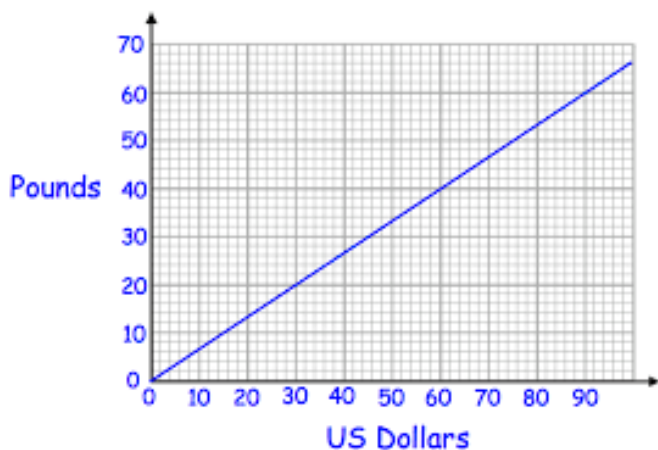
TA



|                      |  |  |  |
|----------------------|--|--|--|
| Success Criteria<br> | I know the x and y axis will be both the same types of measurement e.g. miles and kilometres |  |  |
|                      | I know you can convert both ways: x axis up and across, y axis across and down.              |  |  |
|                      | I can read and work and the scale intervals  |  |  |

|         |             |                   |            |
|---------|-------------|-------------------|------------|
| Support | Independent | Adult Support ( ) | Group Work |
|---------|-------------|-------------------|------------|

Pre-task:



How many US dollars is £40?

How many pounds is \$30?

How could you use this graph to work out \$160 in pounds?

## Teacher Led

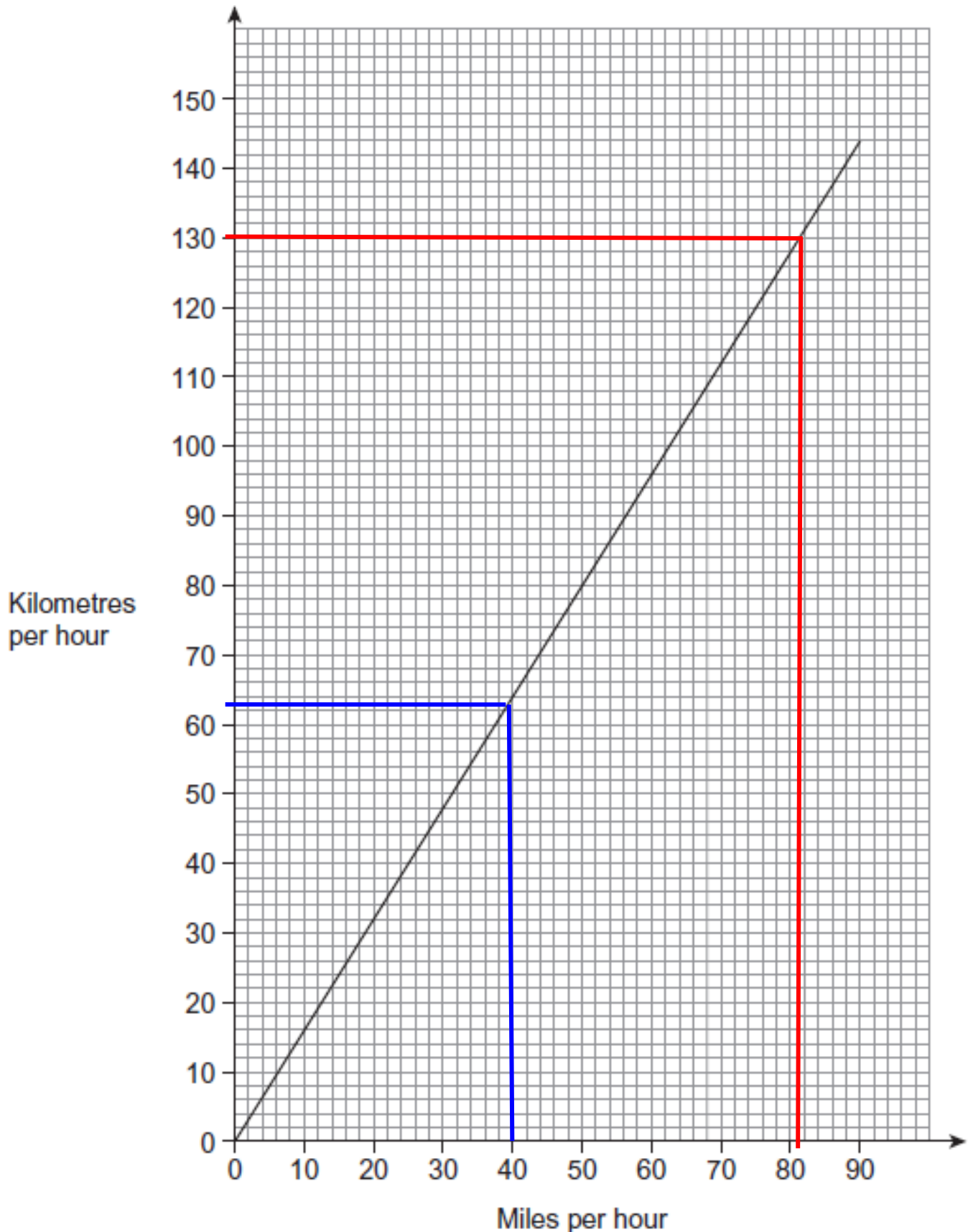
<https://corbettmaths.com/2012/08/09/conversion-graphs/>

The graph below shows miles to kilometres.

If I wanted to know what 40 miles per hour was in kilometres per hour, I would put my ruler at 40 miles on the x axis, I would then read up until I hit the line and then read across to the y axis. (See the blue line)

40 miles per hour is approximately 63 kilometres per hour.

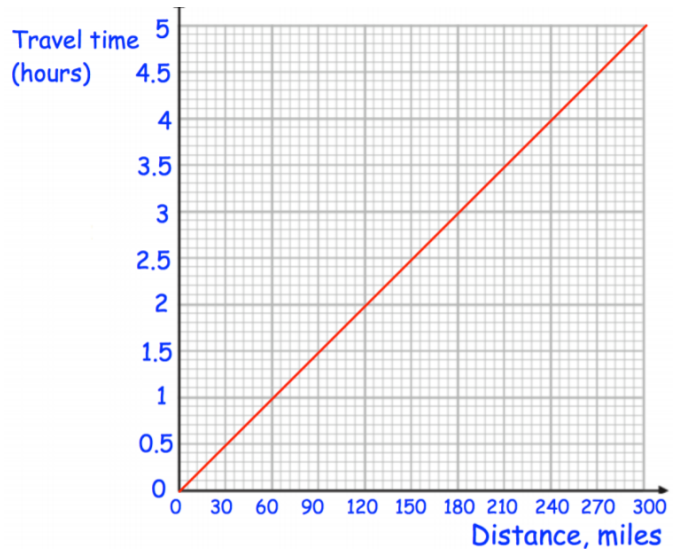
You can read it the opposite way too! If I want to know what 130 kilometres per hour is in miles per hour, I would find 130 on the y axis, read across until I hit the line and then read down to the x axis. (See the red line)



## Fluency

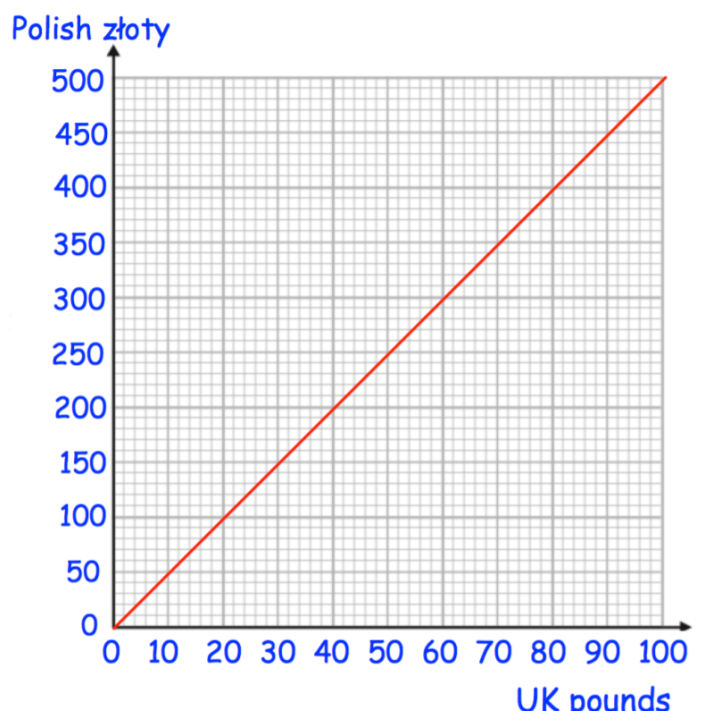
Question 1:

- How long should a 120 mile journey take?
- How long should a 270 mile journey take?
- Carlos has spent 1 hour travelling. What distance is he expected to have travelled?
- Rosie has spent 3.5 hours travelling. What distance is she expected to have travelled?



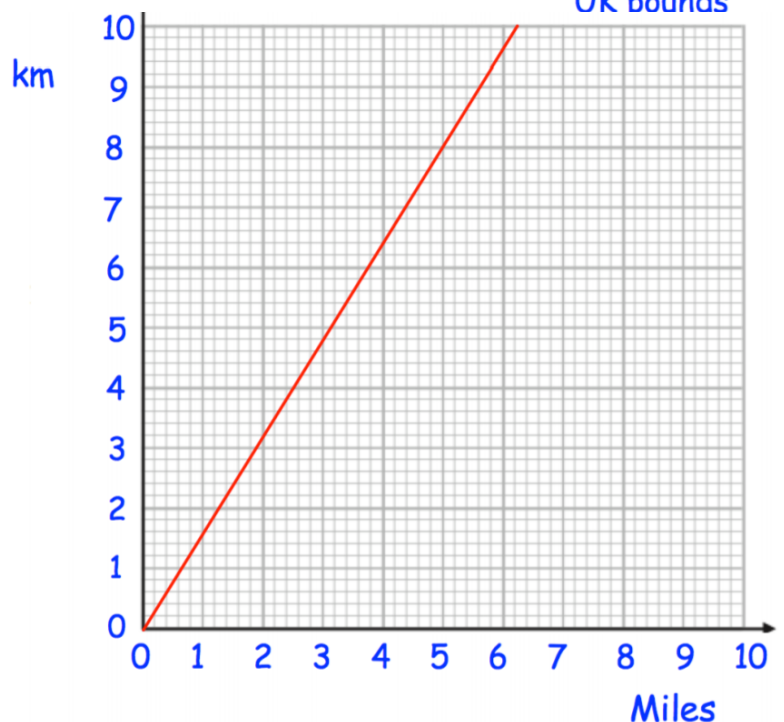
Question 2:

- Change £20 into Polish złoty
- Change £90 into Polish złoty
- Change 300zł into UK pounds
- Change 450zł into UK pounds
- Change £50 into Polish złoty
- Change £200 into Polish złoty
- Change 800zł into UK pounds



Question 3: This conversion graph can be used to change between miles and kilometres.

- Change 5 miles into kilometres
- Change 1 mile into kilometres
- Change 6km into miles
- Change 4.8km into miles
- Change 20 miles into kilometres
- Change 16km into miles



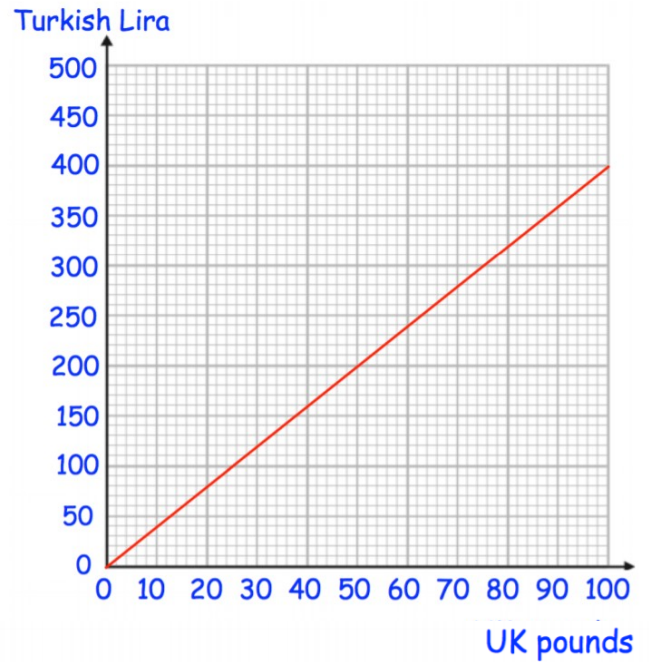
## Apply

Question 1:

Richard has ₺300 and £800.  
He buys a flight that costs ₺900

He pays use the ₺300 and some of the pounds.

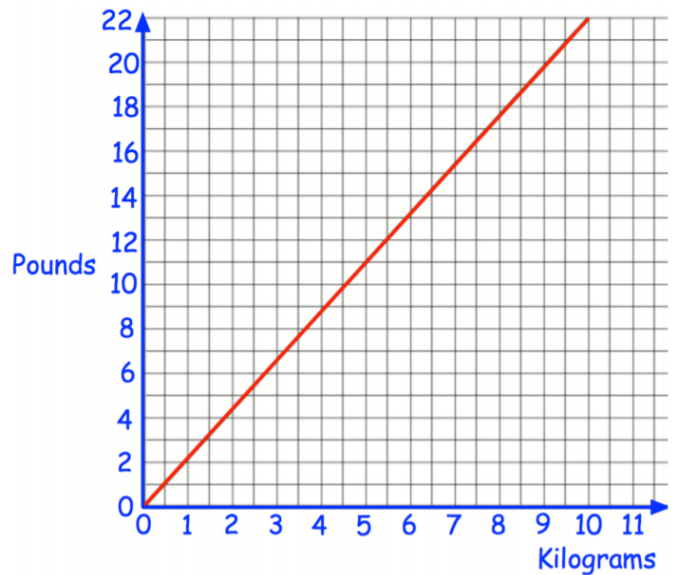
Work out how many pounds he has left.

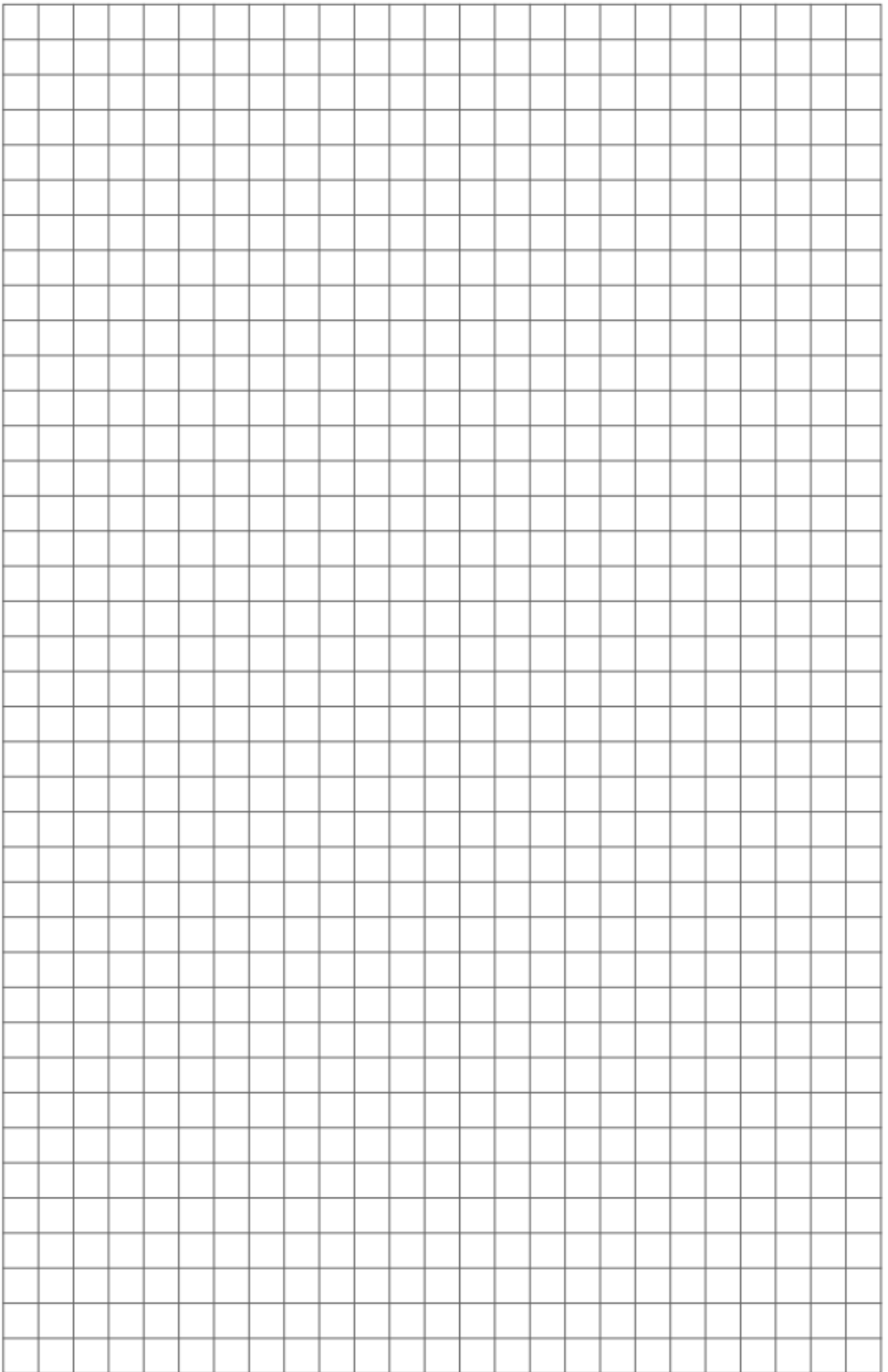


Question 2:

Jenny's weight is 65kg.  
1 stone = 14 pounds.

What is Jenny's weight in stones and pounds?

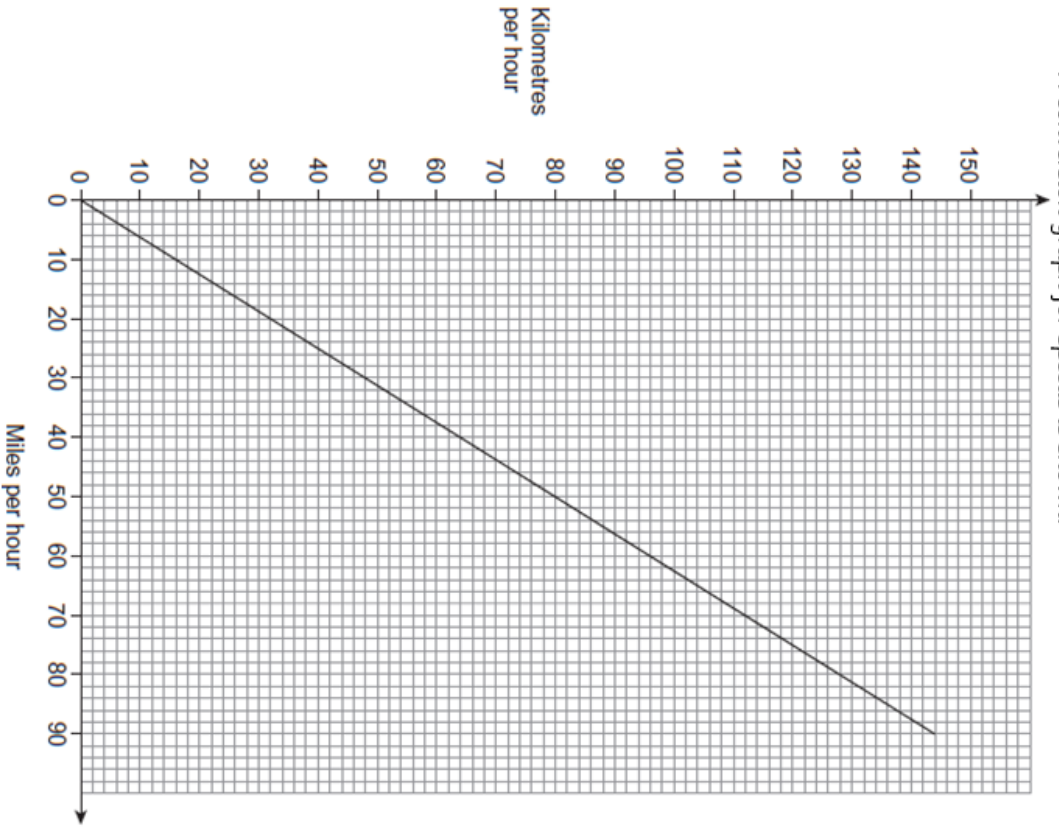




Problem Solving and Reasoning

Q1.

A conversion graph, for speeds, is shown.



(a) In France the motorway speed limit is 130 kilometres per hour. In the UK the motorway speed limit is 70 miles per hour.

In which country is the motorway speed limit higher?  
You **must** show your working, which may be on the graph.

.....  
.....

Answer' .....

(1)

(b) Tom is on holiday in France.

He leaves Calais at 10.45 am.  
The distance from Calais to Paris is 288 kilometres.

He says,

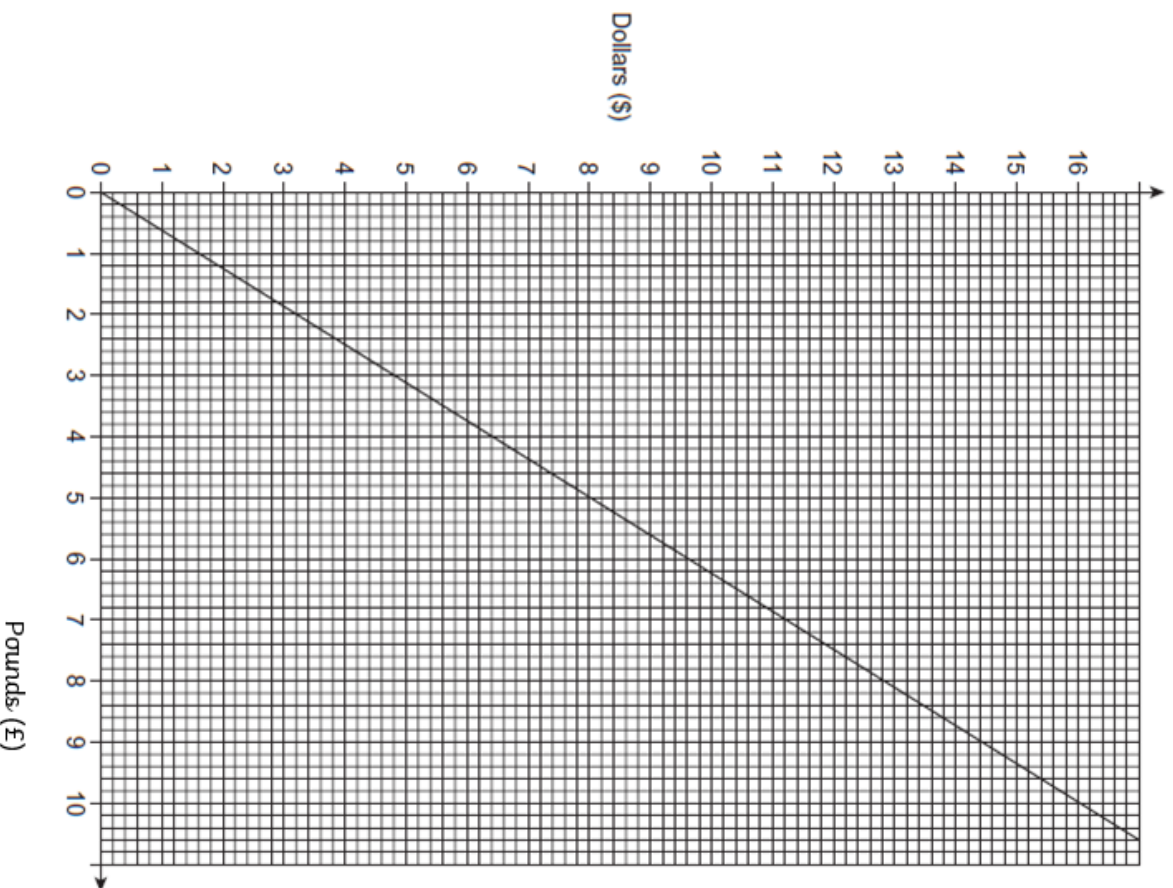
"If I drive at an average speed of 60 miles per hour I will be in Paris before 2 pm."

Is he correct?  
You **must** show your working.

.....  
.....  
.....  
.....  
.....  
.....  
.....

(4)

**Q3. Conversion graph for dollars and pounds.**



(a) Use the graph to convert £5 into dollars (\$).

Answer \$ .....

(1)

(b) Lucy is going to the USA on holiday. She converts £500 into dollars (\$) at the rate shown by the graph.

How much does she get in dollars (\$) ?

.....  
 .....  
 .....

Answer \$ .....

(2)

(c) After the holiday the exchange rate is £1 = \$1.75. She converts \$150 back into pounds (£).

How much does she get back?

.....  
 .....  
 .....

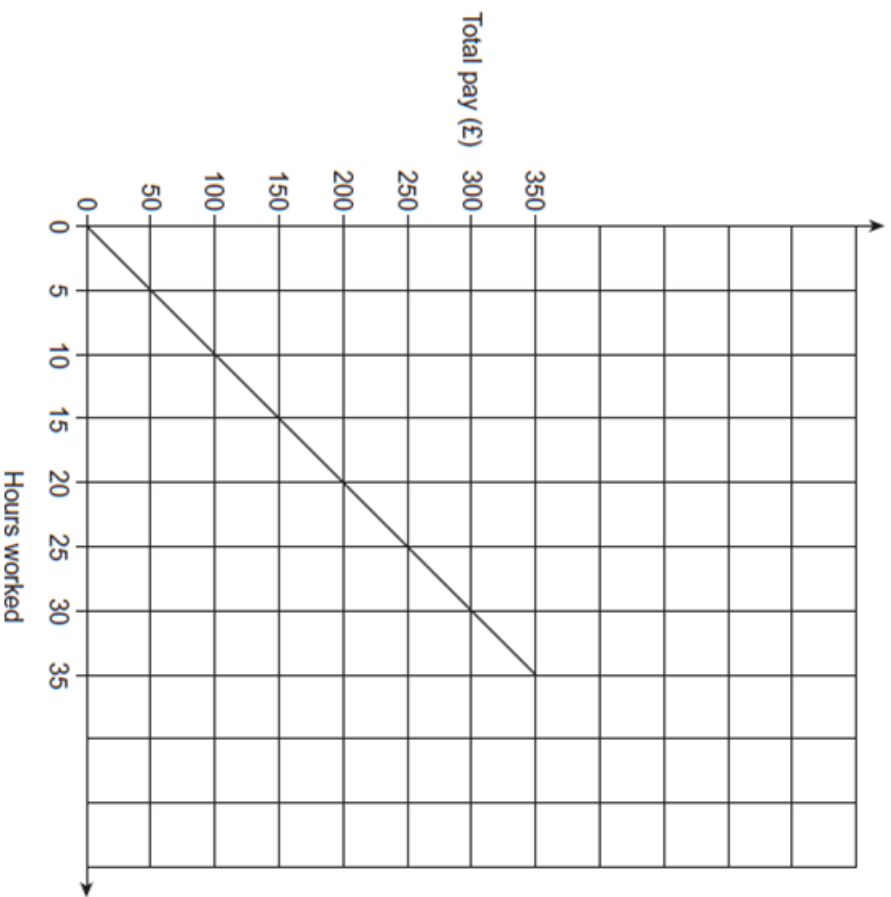
Answer £ .....

(3)

(Total 6 marks)



Q5. The graph shows the total pay (£), that Fatima receives, for up to 35 hours worked.



(a) How much is her total pay if she works for 35 hours?

£ .....

(1)

(b) How much is she paid per hour?

.....

£ .....

(1)

(c) She is paid £ 20 per hour for each hour she works above 35 hours.

Continue the graph for up to 45 hours worked.

You **must** complete the scales on the axes.

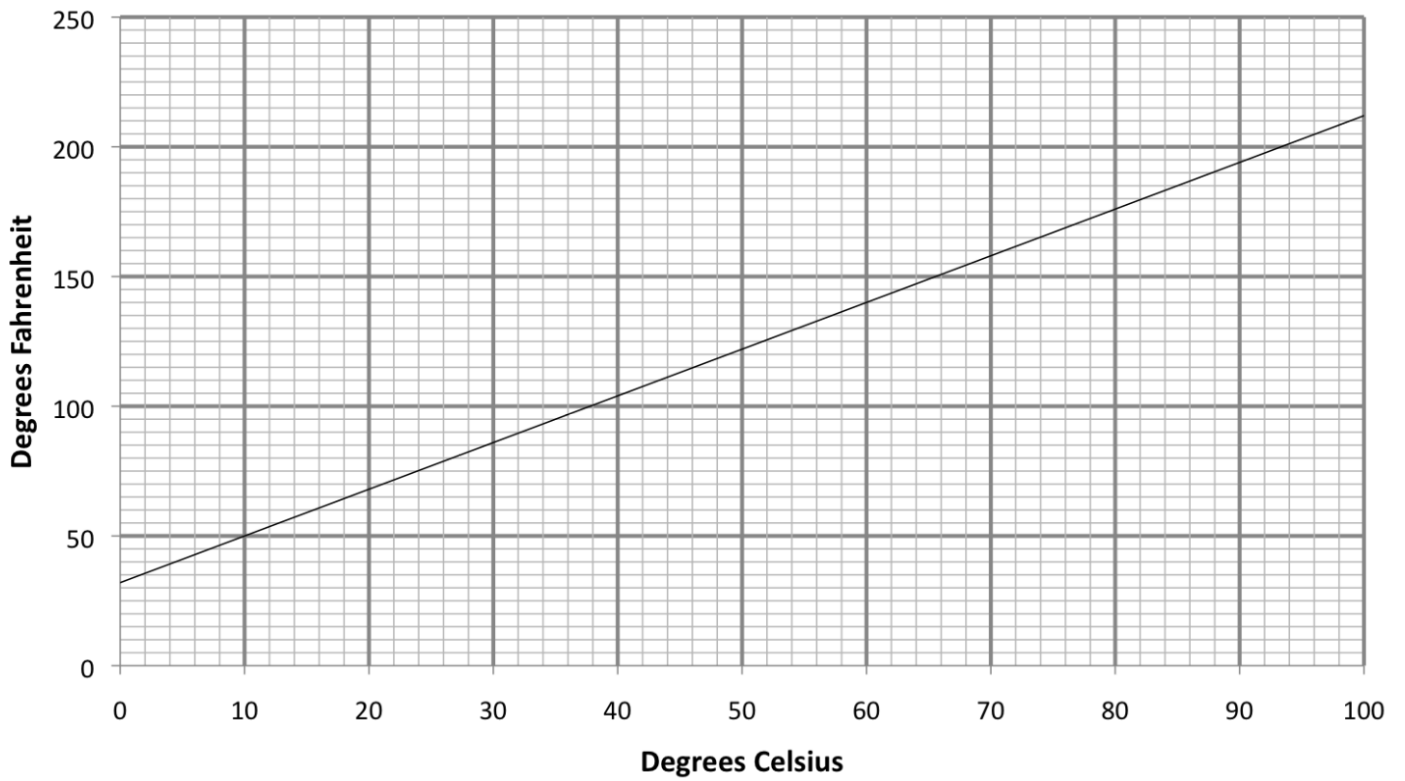
.....

.....

.....

(4)  
(Total 6 marks)

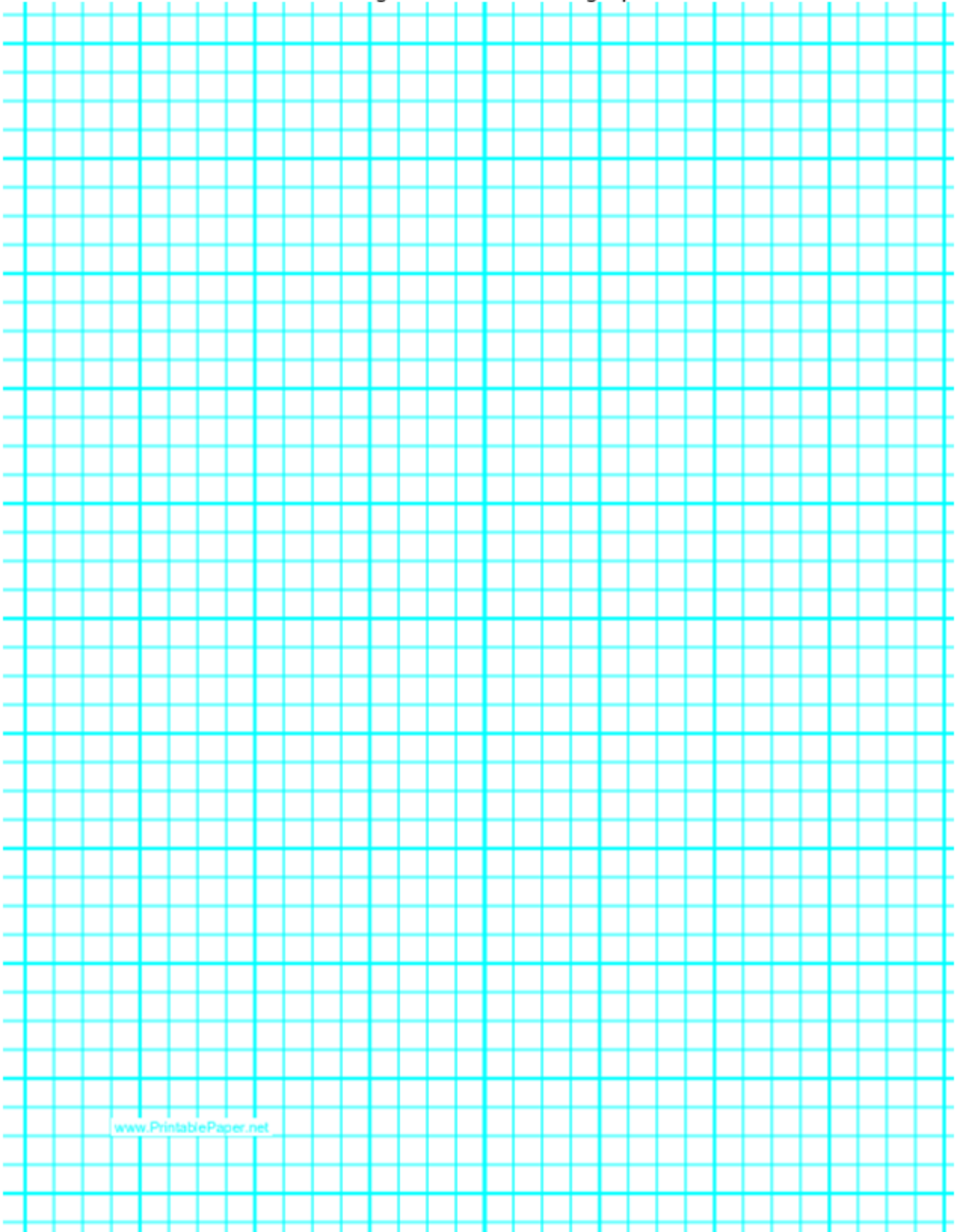
**Conversion Graph: Degrees Fahrenheit - Degrees Celsius**



Write your own questions for the above conversion graph. Remember to create an answer sheet too!

### Further Challenge

Think of all the conversions you know and have learnt about this year. Have a go at drawing a conversion line graph.



Answers

Question 1

- (a) 2 hours
- (b) 4.5 hours
- (c) 60 miles
- (d) 210 miles

Question 2

- (a) 100zl
- (b) 450zl
- (c) £60
- (d) £90
- (e) 250zl
- (f) 1000zl
- (g) £160

Question 3

- (a) 8km
- (b) 1.6km
- (c) 3.8miles
- (d) 3 miles
- (e) 32km
- (f) 10 miles

Question 1

£650

Question 2

10 stone 3 pounds


The image shows two pieces of paper with handwritten mathematical calculations and notes.

**Left Paper:**

- ① a)  $130\text{kmph} = 80\text{mph}$   
 $70\text{mph} = 112\text{kmph}$   
France has a higher speed limit
- b)  $60\text{mph} = 96\text{kmph}$   
He can travel for a maximum of 3 hours 15mins.  
 $1\text{hour} = 96\text{kmph}$   
 $3\text{hours} = 288\text{kmph}$
- Timeline:  
 $10.45\text{am}$   
 $11.00\text{am} \rightarrow +15\text{mins}$   
 $2.00\text{pm} \rightarrow +3\text{hours}$   
 $3\text{hours } 15\text{mins}$
- Tom is correct.





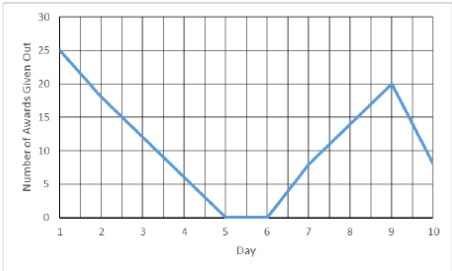
**Right Paper:**

- ③ a)  $£5 = \$8$
- b)  $£500 = \$800$
- c)  $£1 = \$1.75$
- So...  ~~$£50$~~   
 $£100 = \$175$   
 $\div 7 \rightarrow £14.29 = \$25 \rightarrow \div 7$   
 $\times 6 \rightarrow £85.74 = \$150 \rightarrow \times 6$
- ⑤ a)  $£350$
- b) 5 hours =  $£50$   
1 hour =  $£10$
- c) 35 hours =  $£350$   
+ 10 hours at  $£20\text{ per hour}$   
( $10 \times 20 = 200$ )  
 $£550$

|   |   |
|---|---|
| Date  |   |
| Subject/s   | Maths   |
| Learning Objective<br> | To recall and use multiplication and division facts |

|    |         |  |    |         |  |    |         |  |
|----|---------|--|----|---------|--|----|---------|--|
| 1  | 9 X 7   |  | 30 | 6 x 9   |  | 59 | 9 X 4   |  |
| 2  | 8 x 4   |  | 31 | 12 x 3  |  | 60 | 7 x 6   |  |
| 3  | 7 x 10  |  | 32 | 3 x 8   |  | 61 | 4 x 8   |  |
| 4  | 9 x 9   |  | 33 | 8 X 8   |  | 62 | 12 X 2  |  |
| 5  | 6 x 2   |  | 34 | 6 x 8   |  | 63 | 3 x 6   |  |
| 6  | 4 x 7   |  | 35 | 11 x 7  |  | 64 | 4 x 10  |  |
| 7  | 9 X 2   |  | 36 | 10 x 1  |  | 65 | 9 x 11  |  |
| 8  | 12 x 12 |  | 37 | 10 x 5  |  | 66 | 3 x 12  |  |
| 9  | 5 X 9   |  | 38 | 3 x 5   |  | 67 | 3 x 10  |  |
| 10 | 7 X 7   |  | 39 | 12 x 11 |  | 68 | 4 X 4   |  |
| 11 | 11 x 6  |  | 40 | 6 x 6   |  | 69 | 4 x 9   |  |
| 12 | 5 x 11  |  | 41 | 2 x 9   |  | 70 | 4 x 11  |  |
| 13 | 4 x 6   |  | 42 | 12 x 7  |  | 71 | 6 x 5   |  |
| 14 | 9 x 5   |  | 43 | 11 x 8  |  | 72 | 7 x 2   |  |
| 15 | 8 X 12  |  | 44 | 2 x 6   |  | 73 | 5 x 12  |  |
| 16 | 10 x 10 |  | 45 | 4 x 5   |  | 74 | 2 x 10  |  |
| 17 | 7 x 3   |  | 46 | 4 x 9   |  | 75 | 4 x 12  |  |
| 18 | 5 x 8   |  | 47 | 8 x 2   |  | 76 | 7 x 8   |  |
| 19 | 3 x 3   |  | 48 | 7 x 9   |  | 77 | 6 x 10  |  |
| 20 | 10 x 11 |  | 49 | 12 x 8  |  | 78 | 12 x 6  |  |
| 21 | 11 x 2  |  | 50 | 9 X 4   |  | 79 | 7 x 12  |  |
| 22 | 2 x 7   |  | 51 | 5 X 5   |  | 80 | 2 X 2   |  |
| 23 | 6 x 12  |  | 52 | 10 x 12 |  | 81 | 11 x 0  |  |
| 24 | 5 x 7   |  | 53 | 8 x 11  |  | 82 | 2 x 12  |  |
| 25 | 10 x 6  |  | 54 | 4 x 3   |  | 83 | 2 X 4   |  |
| 26 | 9 x 12  |  | 55 | 2 x 5   |  | 84 | 8 x 5   |  |
| 27 | 5 x 4   |  | 56 | 5 x 10  |  | 85 | 7 x 11  |  |
| 28 | 11 x 11 |  | 57 | 9 x 3   |  | 86 | 9 x 6   |  |
| 29 | 7 x 4   |  | 58 | 8 x 10  |  | 87 | 10 x 11 |  |

## Steps to Success

|   |  |   |   |
|---|--|---|---|
| Date  |  |   |   |
| Subject/s   | <u>Maths</u>   |   |   |
| Learning Objective  | To read line graphs  |   |   |
|    |  |   |   |
|   |  | SA<br> | TA<br> |
| Success Criteria  | I know that the x axis is usually the time<br>I know the y axis is the measurement<br>I know that a horizontal line means it has stayed the same |   |   |
|    |  |   |   |
| Support   | Independent  | Adult Support (    )  | Group Work  |
| Pre-task: <div style="display: flex; justify-content: space-between; align-items: flex-start; padding: 10px;"> <div style="width: 30%;"> <p>How many children got the award on day 9?<br/>                     How many more children got the award on day 1 than on day 7?</p> </div> <div style="width: 30%; text-align: center;">  </div> <div style="width: 30%;"> <p>How many awards were handed out altogether over the first 5 days?<br/>                     Which days were no awards given out?</p> </div> </div> |  |   |   |

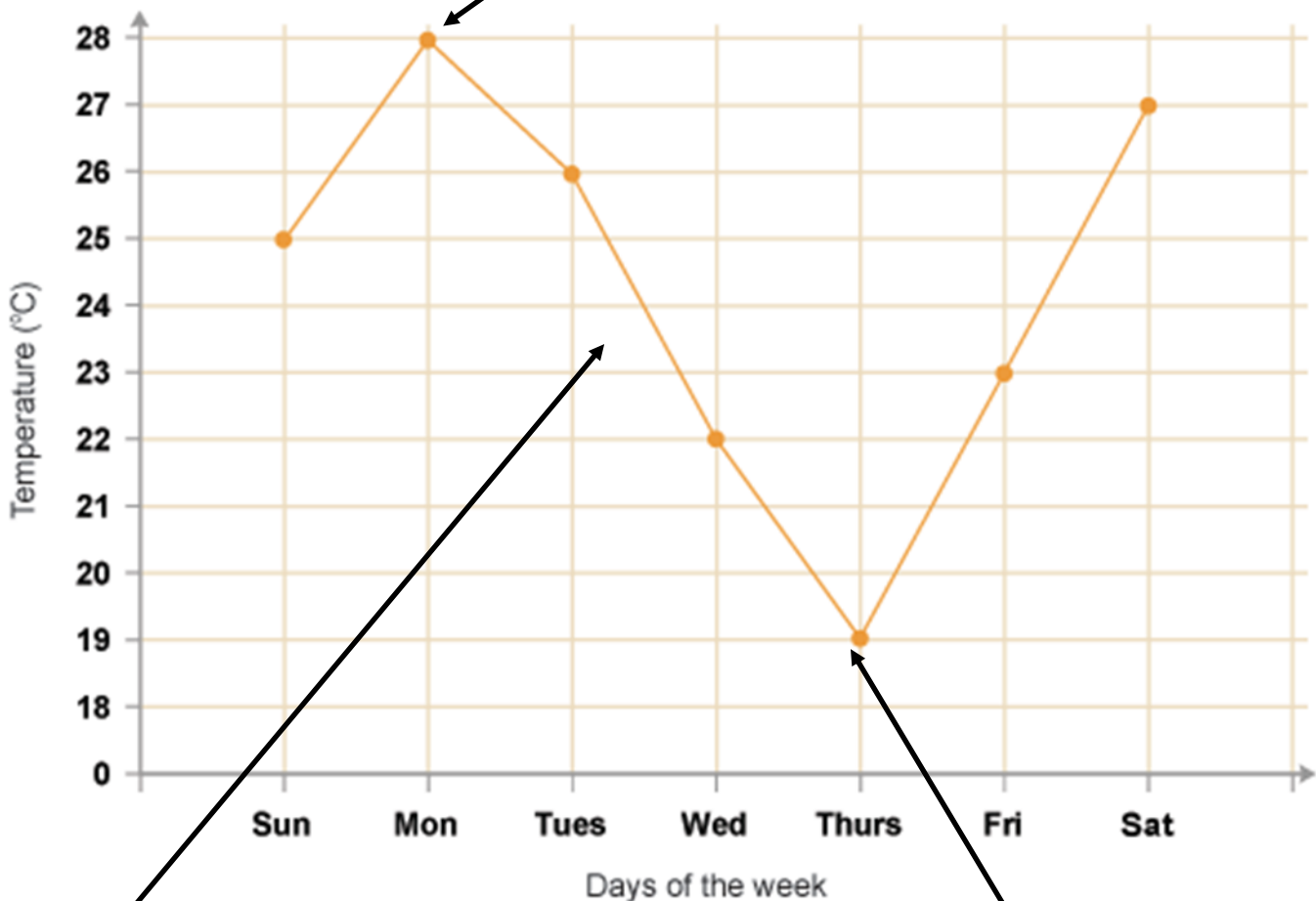
Teacher Led

<https://www.youtube.com/watch?v=OWkqfJBfXic&safe=active>

Line graphs are continuous data that are always about time. It could be time in hours, minutes, days, months or years etc.

The steepness of the lines tell you information about how quick the total (y axis) changes.

This is the highest point in the graph so I know that on Monday the total (in this case the temperature) was at it's highest.

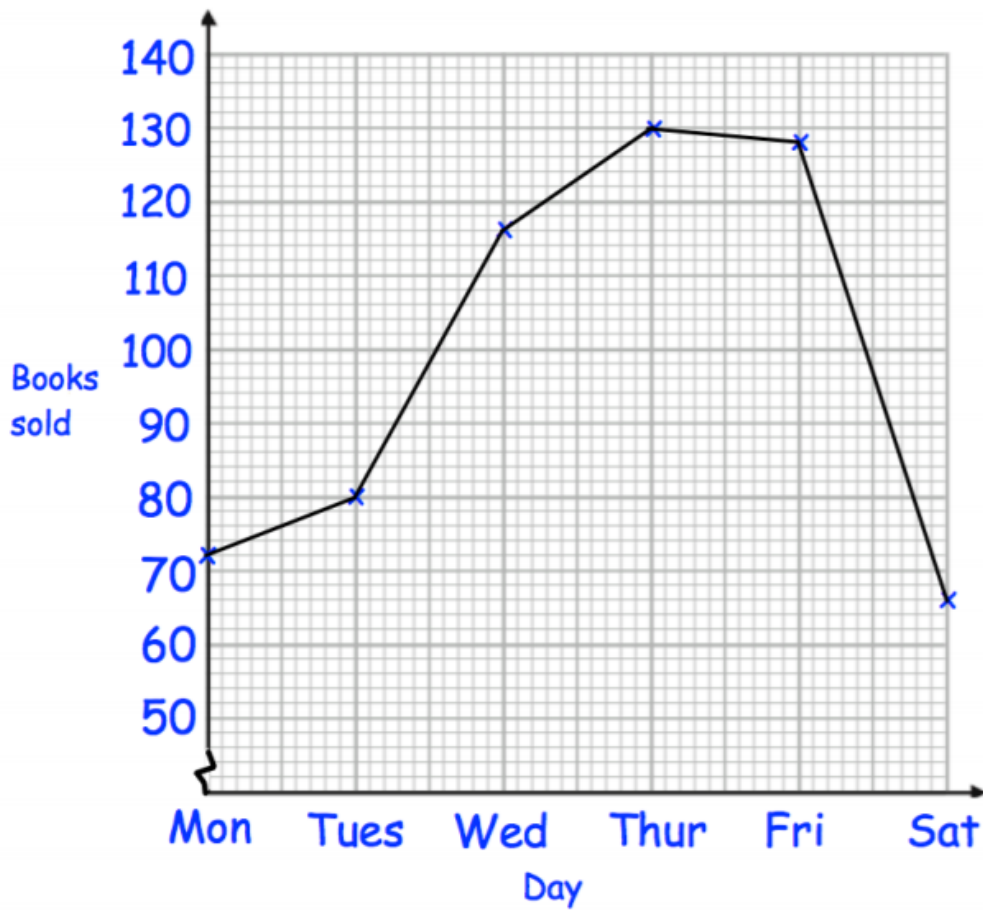


Between Tuesday and Wednesday the line is going down so I know that it is decreasing. It is also a very steep line which shows it has decreased by a large amount.

This is the lowest point in the graph, so I know that on Thursday the total (in this case temperature) was at it's lowest)

Fluency

1. Below is a line graph that shows how many books are sold in a charity shop over one week.



- (a) On which day did the charity shop sell the most books?

.....  
(1)

- (b) On which day did the charity shop sell the least books?

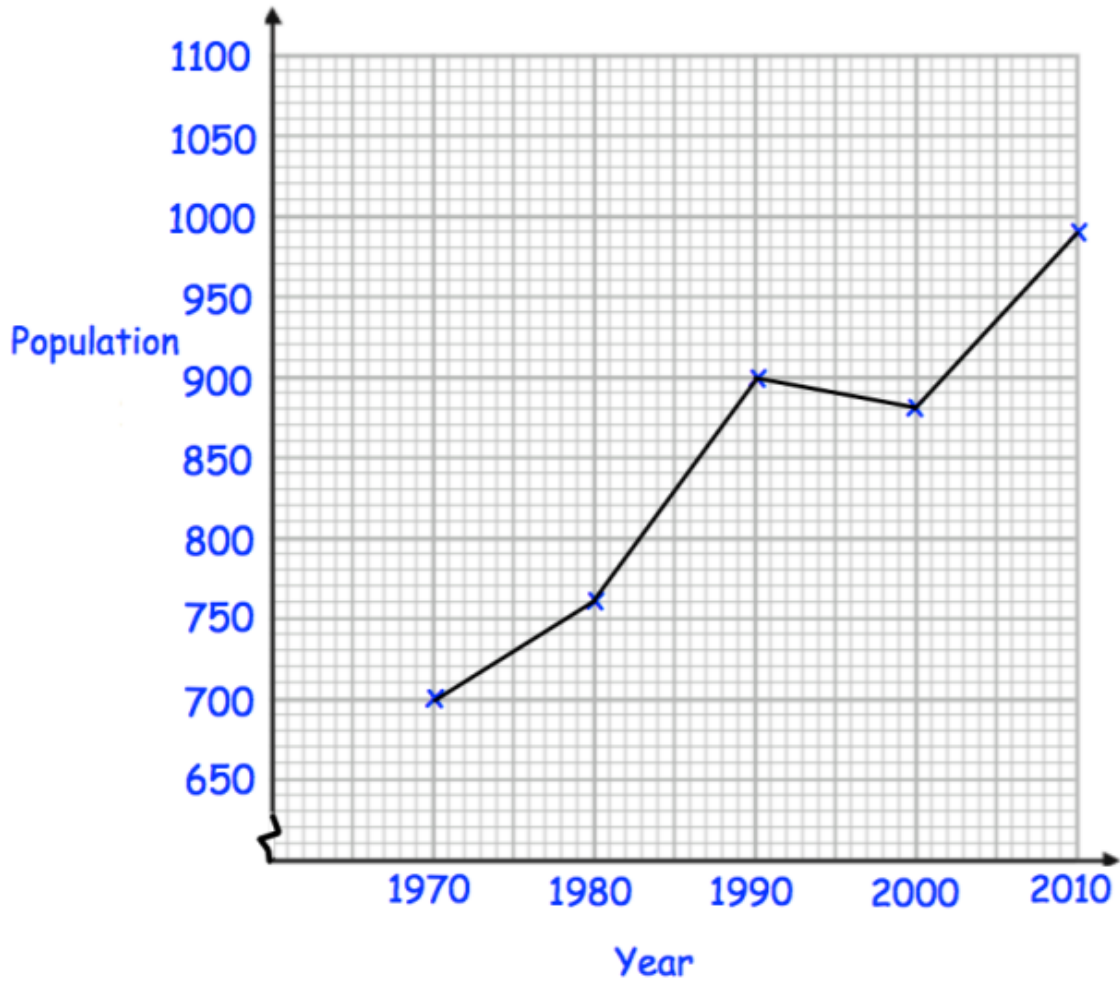
.....  
(1)

- (c) How many books were sold on Tuesday?

.....  
(1)



2. Below is a line graph that shows the population of a village.



(a) What was the population in 1980?

.....  
(1)

(b) In which year was the population 700?

.....  
(1)

The population is expected to increase by 120 by 2020.

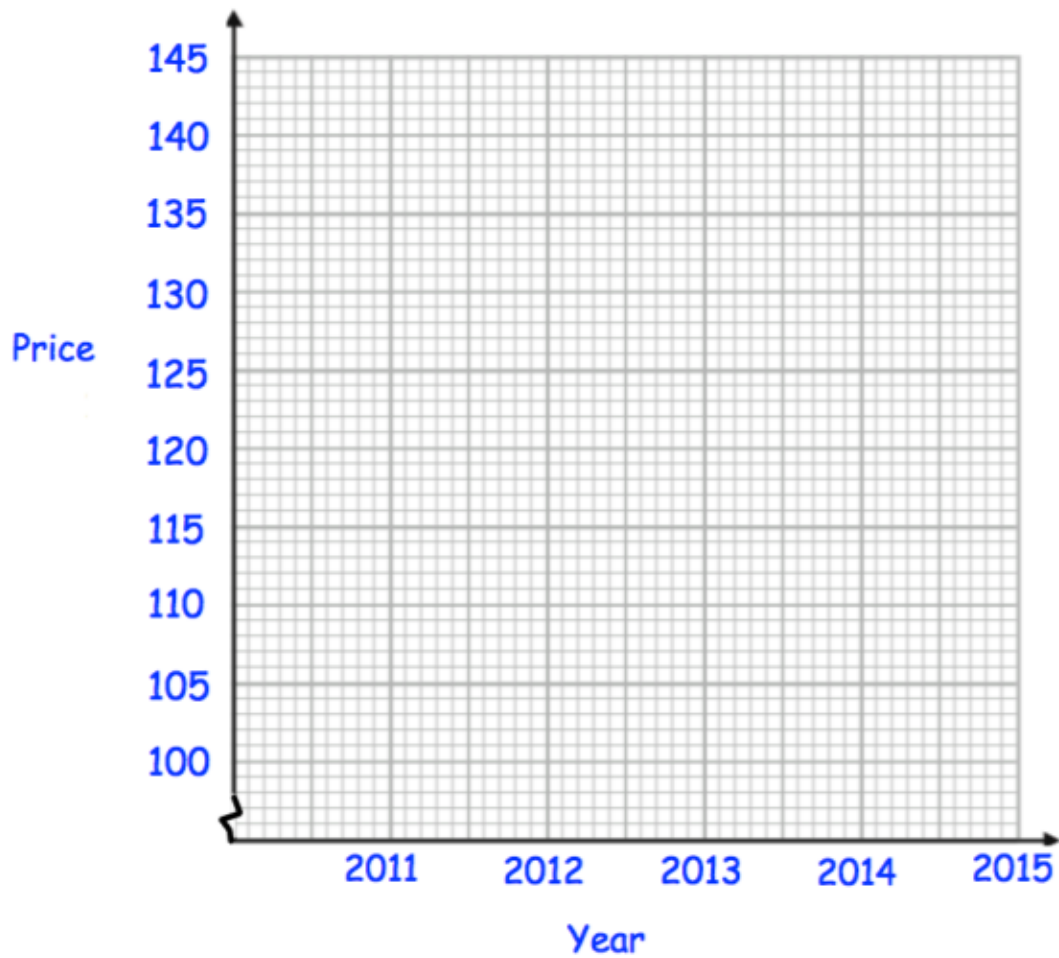
(c) Work out the expected population in 2020.

.....  
(2)

3. The table shows the average price of unleaded petrol in England over 5 years.

| Year | Price in pence |
|------|----------------|
| 2011 | 111            |
| 2012 | 128            |
| 2013 | 133            |
| 2014 | 132            |
| 2015 | 108            |

(a) Draw a line graph for the data

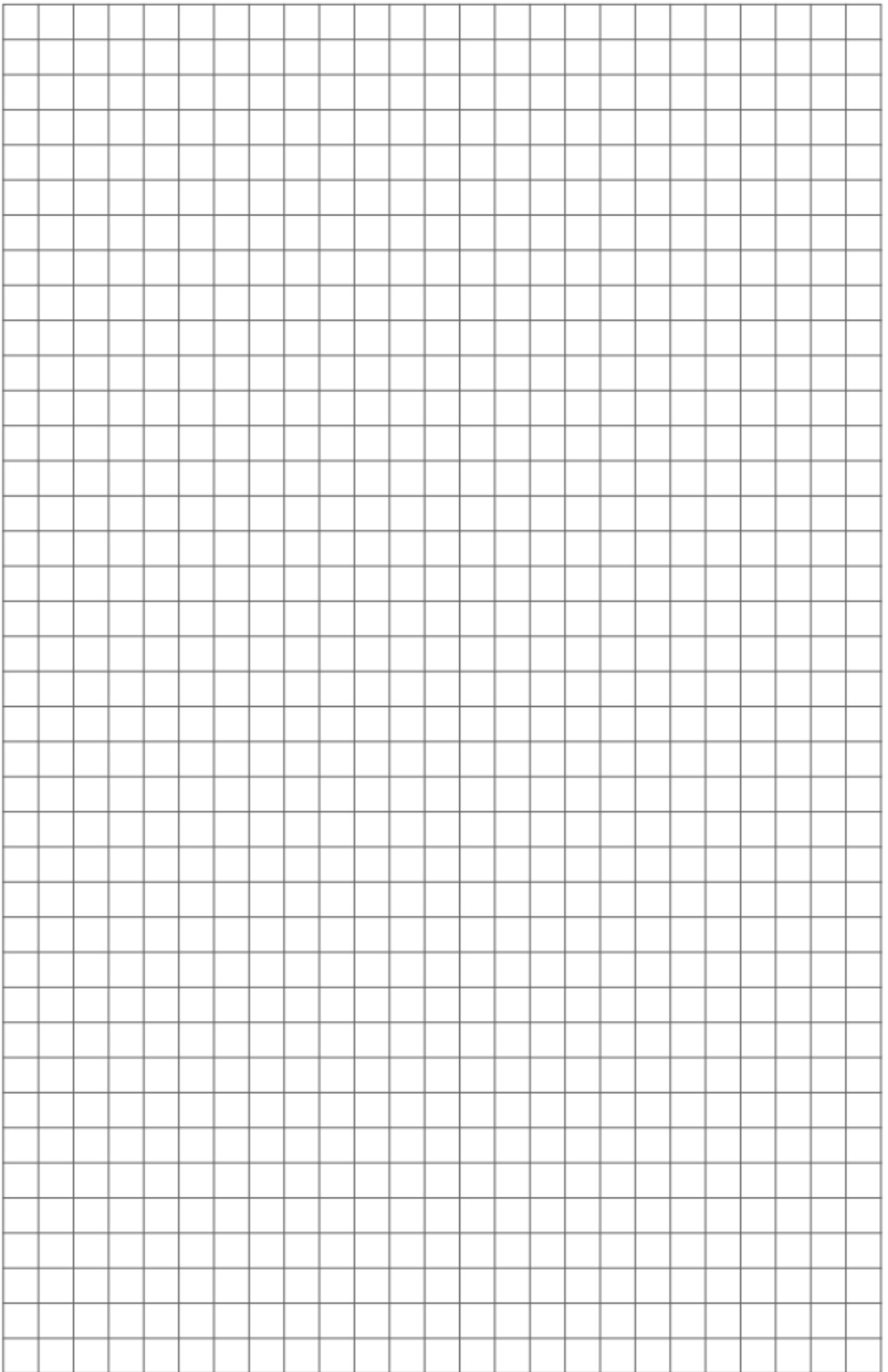


(2)

(b) Between which two consecutive years did the price increase the most?

..... and .....

(1)



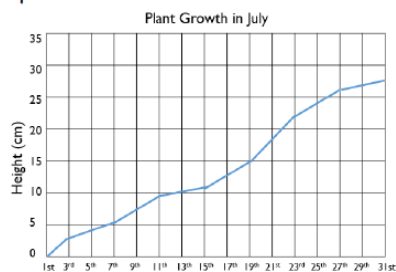
## Problem Solving and Reasoning

- 1 Here is a line graph showing a bath time.  
Can you write a story to explain what is happening in the graph?



- How long did it take to fill the bath?
- How long did it take to empty?
- Why is there a difference?
- What happened when the height of water reached around 16cm?

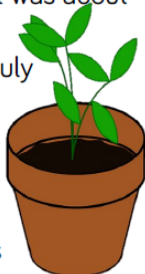
Jill has created a graph to track the growth of a plant in her house.



Jill recorded the following facts about the graph.

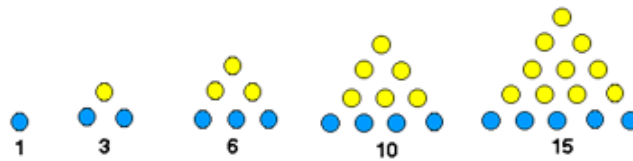
- On the 9th of July the plant was about 9 cm tall.
- Between the 11th and 19th July the plant grew 5 cm.
- At the end of the month the plant was twice as tall as it had been on the 13th.

Can you spot and correct Jill's mistakes?

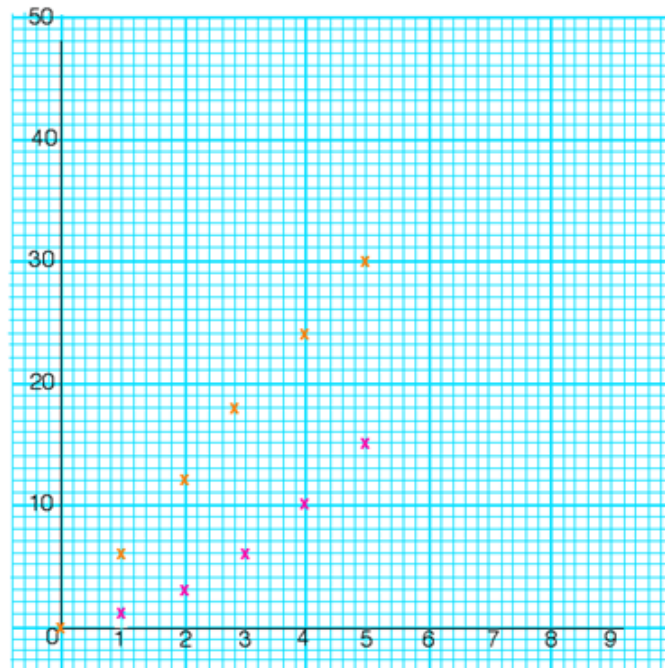


## Further Challenge

The class were making number patterns and then making graphs of them. Several children had plotted graphs of the "times tables". They made good-looking straight lines. Tom had started on the six times table but had then decided to do something more interesting. He had made the triangular numbers with counters last year. That was a better idea, he thought.



So he started to put them on the same graph paper as the unfinished six times table.



"It's not a very good straight line," he remarked to Andy who was sitting next to him.

"I think it's going to cross the six times line," answered Tom, "But you'll have to make a lot more of both of them. I'm going to try square numbers, I bet the tables one will cross that!"

Does the graph of the triangular numbers cross that of the six times table?

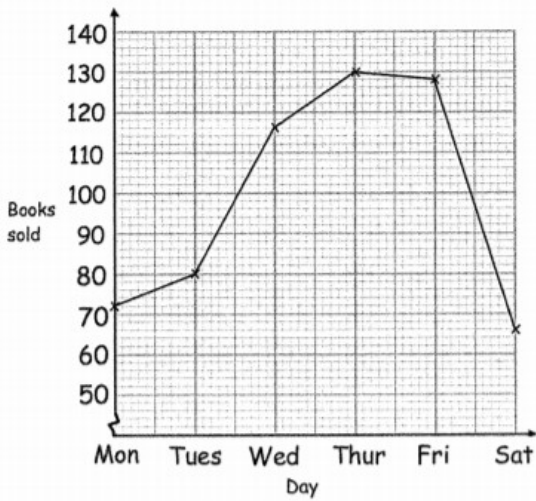
And if it does, where?

Does the graph of square numbers cross those of the times tables?

And if it does, where?

# Answers

1. Below is a line graph that shows how many books are sold in a charity shop over one week.



(a) On which day did the charity shop sell the most books?

Thursday (1)

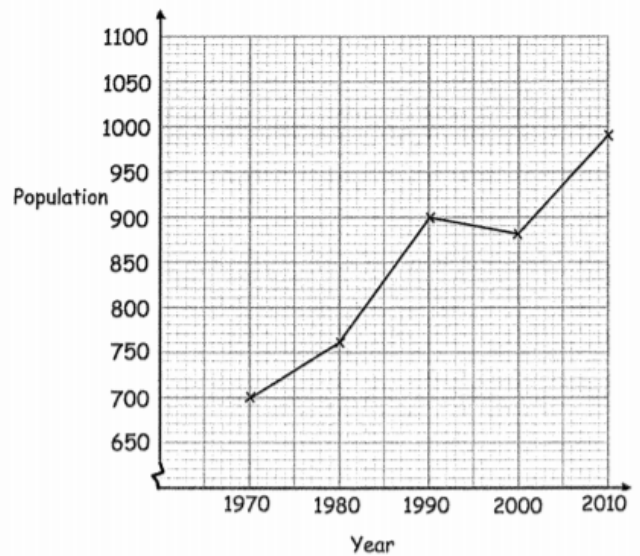
(b) On which day did the charity shop sell the least books?

Saturday (1)

(c) How many books were sold on Tuesday?

80 (1)

2. Below is a line graph that shows the population of a village.



(a) What was the population in 1980?

760 (1)

(b) In which year was the population 700?

1970 (1)

The population is expected to increase by 120 by 2020.

(c) Work out the expected population in 2020.

2010 - population is 990  
 $990 + 120 = 1110$

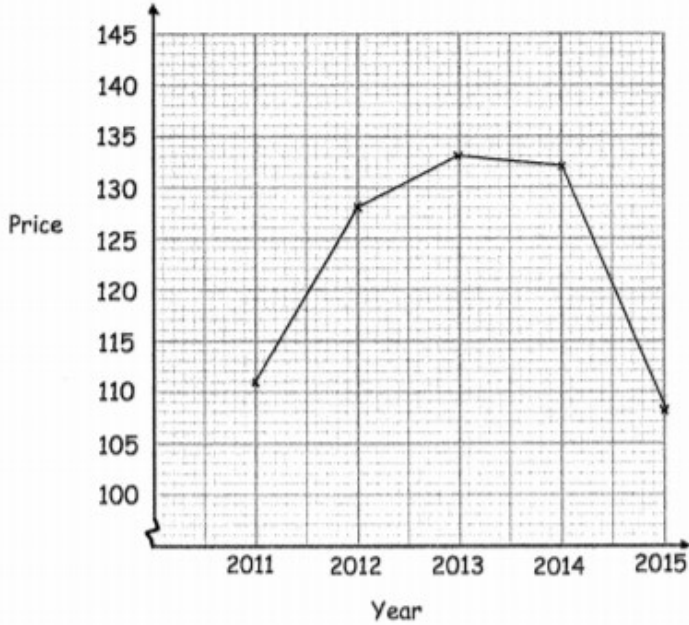
1110 (2)

3. The table shows the average price of unleaded petrol in England over 5 years.

| Year | Price in pence |
|------|----------------|
| 2011 | 111            |
| 2012 | 128            |
| 2013 | 133            |
| 2014 | 132            |
| 2015 | 108            |

*+17*  
*+5*  
*-1*  
*-24*

(a) Draw a line graph for the data



(2)

(b) Between which two consecutive years did the price increase the most?

2011 and 2012

(1)

### Answers

Discussions around what happens to the water level when someone gets in the bath would be useful.

8 mins to fill the bath

4 mins to empty


One or two taps could be used to fill. Steady rate of flow to empty

Someone got in the bath so the water level was raised.

a) On the 9th July a more accurate measurement would be 7.5 cm.

b) Correct.

c) On the 31st the plant was approximately 28 cm tall, but on the 13th it was only 10 cm which is not half of 28 cm. The plant was closer to 14 cm on the 17th July.

|   |   |
|---|---|
| Date  |   |
| Subject/s   | Maths   |
| Learning Objective<br> | To recall and use multiplication and division facts |

|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| $2 \times 2 =$   | $3 \times 3 =$   | $4 \times 4 =$   | $11 \times 10 =$ |
| $3 \times 5 =$   | $6 \times 8 =$   | $7 \times 5 =$   | $10 \times 2 =$  |
| $4 \times 6 =$   | $12 \times 5 =$  | $8 \times 12 =$  | $3 \times 12 =$  |
| $7 \times 4 =$   | $8 \times 6 =$   | $10 \times 11 =$ | $4 \times 9 =$   |
| $10 \times 10 =$ | $10 \times 12 =$ | $4 \times 2 =$   | $5 \times 7 =$   |
| $9 \times 3 =$   | $11 \times 2 =$  | $10 \times 3 =$  | $9 \times 8 =$   |
| $7 \times 2 =$   | $3 \times 9 =$   | $6 \times 8 =$   | $10 \times 7 =$  |
| $11 \times 3 =$  | $4 \times 11 =$  | $12 \times 10 =$ | $7 \times 8 =$   |
| $10 \times 5 =$  | $2 \times 5 =$   | $2 \times 11 =$  | $4 \times 3 =$   |
| $2 \times 4 =$   | $6 \times 10 =$  | $8 \times 3 =$   | $12 \times 4 =$  |
| $5 \times 6 =$   | $10 \times 9 =$  | $3 \times 4 =$   | $5 \times 8 =$   |
| $7 \times 10 =$  | $2 \times 12 =$  | $4 \times 5 =$   | $8 \times 8 =$   |
| $9 \times 2 =$   | $5 \times 3 =$   | $7 \times 8 =$   | $12 \times 2 =$  |
| $3 \times 11 =$  | $9 \times 4 =$   | $8 \times 10 =$  | $5 \times 4 =$   |
| $10 \times 4 =$  | $5 \times 5 =$   | $2 \times 8 =$   | $9 \times 5 =$   |
| $8 \times 5 =$   | $8 \times 8 =$   | $8 \times 0 =$   | $8 \times 11 =$  |
| $9 \times 8 =$   | $9 \times 10 =$  | $4 \times 12 =$  | $2 \times 10 =$  |
| $4 \times 10 =$  | $5 \times 2 =$   | $12 \times 8 =$  | $4 \times 7 =$   |
| $3 \times 2 =$   | $6 \times 3 =$   | $3 \times 6 =$   | $11 \times 5 =$  |
| $7 \times 3 =$   | $6 \times 4 =$   | $5 \times 10 =$  | $2 \times 3 =$   |
| $4 \times 8 =$   | $5 \times 11 =$  | $8 \times 2 =$   | $8 \times 9 =$   |
| $5 \times 9 =$   | $2 \times 6 =$   | $3 \times 7 =$   | $8 \times 4 =$   |
| $12 \times 8 =$  | $3 \times 10 =$  | $11 \times 4 =$  | $11 \times 8 =$  |
| $2 \times 9 =$   | $2 \times 7 =$   | $5 \times 12 =$  | $12 \times 3 =$  |
| $10 \times 8 =$  | $3 \times 8 =$   | $0 \times 4 =$   | $8 \times 7 =$   |





7  $84 \div 7 =$

1 mark

10  $2.001 + 0.11 =$

1 mark

8  $\frac{9}{10} - \frac{7}{10} =$

1 mark

11  $5^3 =$

1 mark

9  $8 \times 4 \times 3 =$

1 mark

12  $6011 \div 1000 =$

1 mark

13  $70 \times 70 =$

1 mark

16  $5.3 \times 1000 =$

1 mark

14  $\frac{1}{6} + \frac{1}{6} =$

1 mark

17  $4 \times 3.04 =$

1 mark

15  =  $7093 + 8921$

1 mark

18 10% of 5980 =

1 mark

19

$$560 \div 8 =$$

1 mark

22

$$107\,256 - 34\,782 =$$

1 mark

20

$$3084 \div 6 =$$

1 mark

23

$$13 - 10.82 =$$

1 mark

21

$$10\,000 - 3300 =$$

1 mark

24

$$20.4 - 5.66 =$$

1 mark

25

$31 \times 38 =$

|   |   |   |  |
|---|---|---|--|
|   | 3 | 1 |  |
| x | 3 | 8 |  |

2 marks

27

$3289 \div 13 =$

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1 | 3 | 3 | 2 | 8 | 9 |
|---|---|---|---|---|---|

2 marks

26

$\frac{1}{6} \times \frac{1}{4} =$

1 mark

28

23% of 320 =

1 mark

29

$$8 \times 5 \frac{1}{4} =$$

1 mark

31

$$\frac{5}{6} \div 5 =$$

1 mark

30

$$2007 \times 65 =$$

$$\begin{array}{r} 2007 \\ \times 65 \\ \hline \end{array}$$

2 marks

32

$$24 \div (10 - 4) =$$

1 mark

33

$$\frac{9}{10} + \frac{4}{5} =$$

1 mark

34  $2728 \div 31 =$

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 3 | 1 | 2 | 7 | 2 | 2 | 8 |
|---|---|---|---|---|---|---|

2 marks

36  $2\frac{1}{3} - \frac{3}{4} =$

1 mark

35  $\frac{7}{10} \div 3 =$

1 mark

## Answers

| question | answer                          | marks |
|----------|---------------------------------|-------|
| 1        | <b>243</b>                      | 1     |
| 2        | <b>1065</b>                     | 1     |
| 3        | <b>3.6</b>                      | 1     |
| 4        | <b>130</b>                      | 1     |
| 5        | <b>6509</b>                     | 1     |
| 6        | <b>438</b>                      | 1     |
| 7        | <b>12</b>                       | 1     |
| 8        | $\frac{1}{5}$ or $\frac{2}{10}$ | 1     |
| 9        | <b>96</b>                       | 1     |
| 10       | <b>2.111</b>                    | 1     |
| 11       | <b>125</b>                      | 1     |
| 12       | <b>6.011</b>                    | 1     |
| 13       | <b>4900</b>                     | 1     |
| 14       | $\frac{1}{3}$ or $\frac{2}{6}$  | 1     |
| 15       | <b>16014</b>                    | 1     |
| 16       | <b>5300</b>                     | 1     |
| 17       | <b>12.16</b>                    | 1     |
| 18       | <b>598</b>                      | 1     |
| 19       | <b>70</b>                       | 1     |
| 20       | <b>514</b>                      | 1     |
| 21       | <b>6700</b>                     | 1     |

| question | answer          | marks    |
|----------|-----------------|----------|
| 22       | <b>72 474</b>   | 1        |
| 23       | <b>2.18</b>     | 1        |
| 24       | <b>14.74</b>    | 1        |
| 25       | <b>1178</b>     | 2        |
| 26       | $\frac{1}{24}$  | 1        |
| 27       | <b>253</b>      | 2        |
| 28       | <b>73.6</b>     | 1        |
| 29       | <b>42</b>       | 1        |
| 30       | <b>130 455</b>  | 2        |
| 31       | $\frac{1}{6}$   | 1        |
| 32       | <b>4</b>        | 1        |
| 33       | $1\frac{7}{10}$ | 1        |
| 34       | <b>88</b>       | 2        |
| 35       | $\frac{7}{30}$  | 1        |
| 36       | $1\frac{7}{12}$ | 1        |
|          |                 | Total 40 |