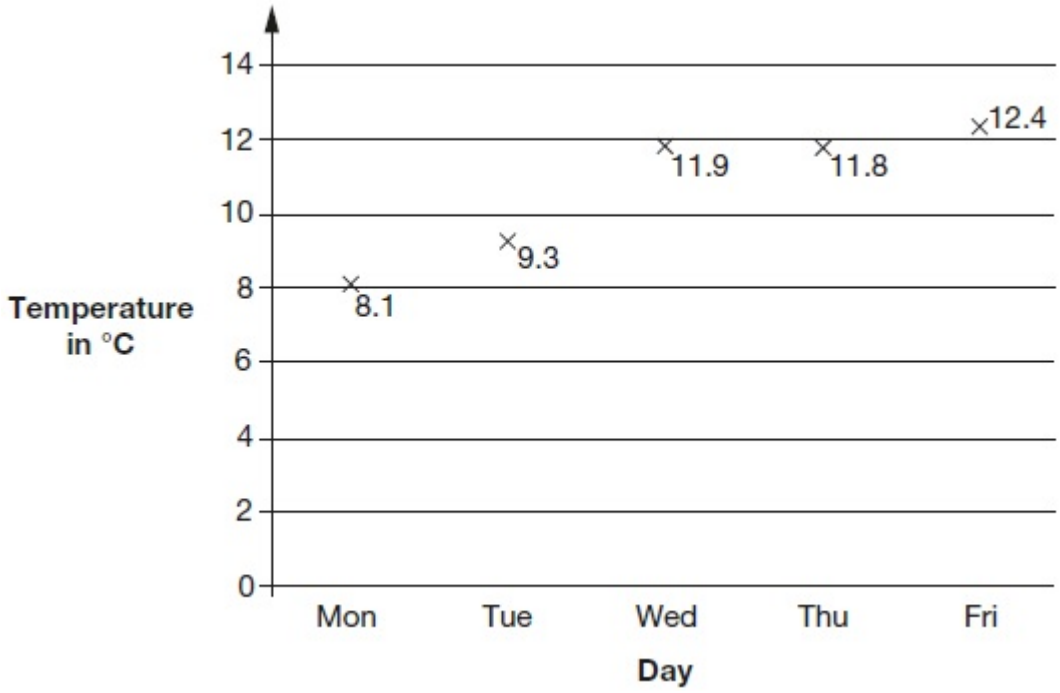
1. This graph shows the maximum temperature for five days.



For what fraction of the five days was the maximum temperature below 10°C?

1 mark

What was the **mean** maximum temperature, to one decimal place?

Show your method

°C

2 marks

2. Last year, Jacob went to four concerts.

Three of his tickets cost £5 each.

The other ticket cost £7

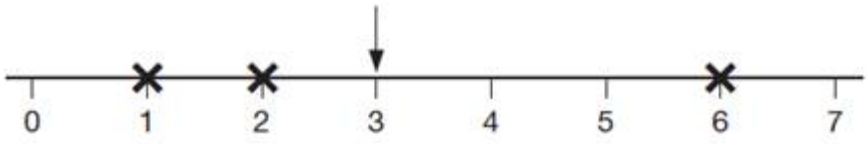
What was the **mean** cost of the tickets?

Show your method

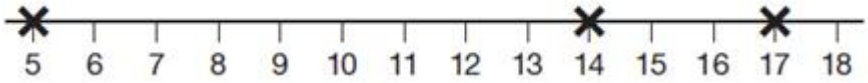
£

2 marks

3. The arrow below points to the **mean** of the three numbers shown by crosses.



(a) Draw an arrow that points to the mean of the three numbers shown below.

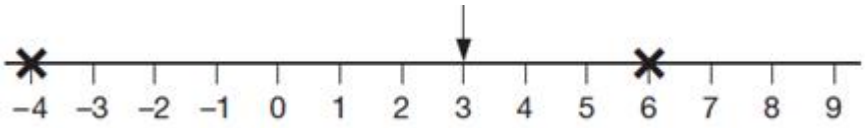


1 mark

(b) The arrow below points to the mean of three numbers.

One of the numbers is missing.

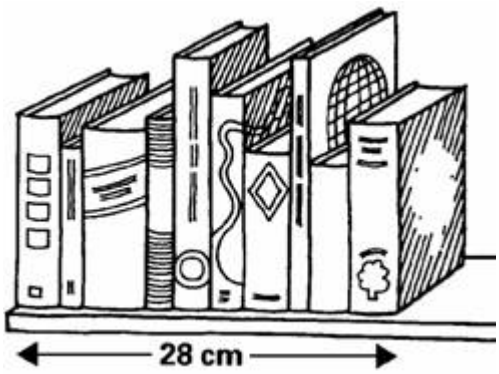
Draw a cross to show the position of the missing number.



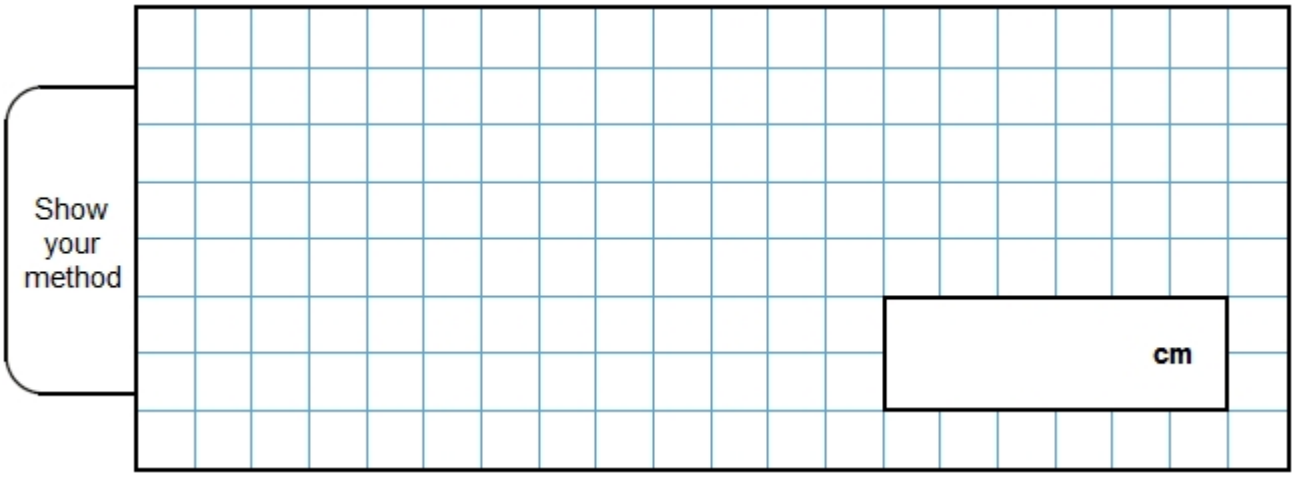
1 mark

4. Vicki puts 10 books on a shelf.

The **10 books** take up **28 centimetres**.



What is the **mean (average)** thickness of her books?

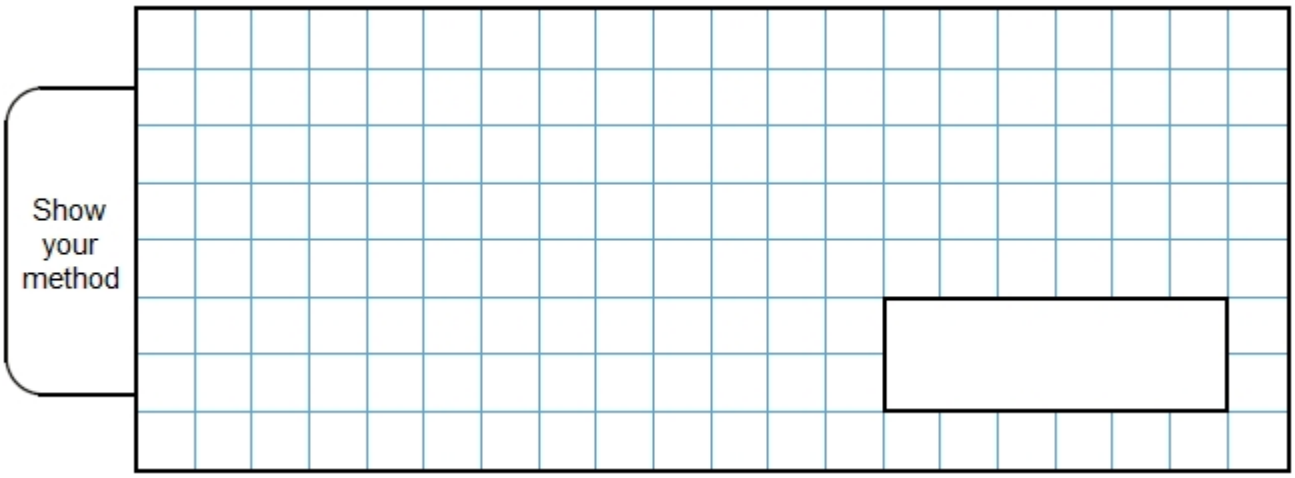


2 marks

The shelf is **120 centimetres** long.

Vicki fills the shelf with a mixture of books like the **first ten books.**

Estimate how many books she can get on the **120 cm shelf**.

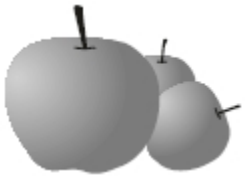


2 marks

5. Three apples have a **mean** (average) mass of 100 grams.

The largest apple is removed.

The **mean** mass of the remaining two apples is 70 grams.



What is the mass of the largest apple?

Show your method

g

2 marks

6. Megan goes on a walking holiday for five days.

The table shows how far she walked on the first four days.

Monday	Tuesday	Wednesday	Thursday
14 km	23 km	13 km	13 km

Megan says,

'My average for the first four days is more than 15 km.'

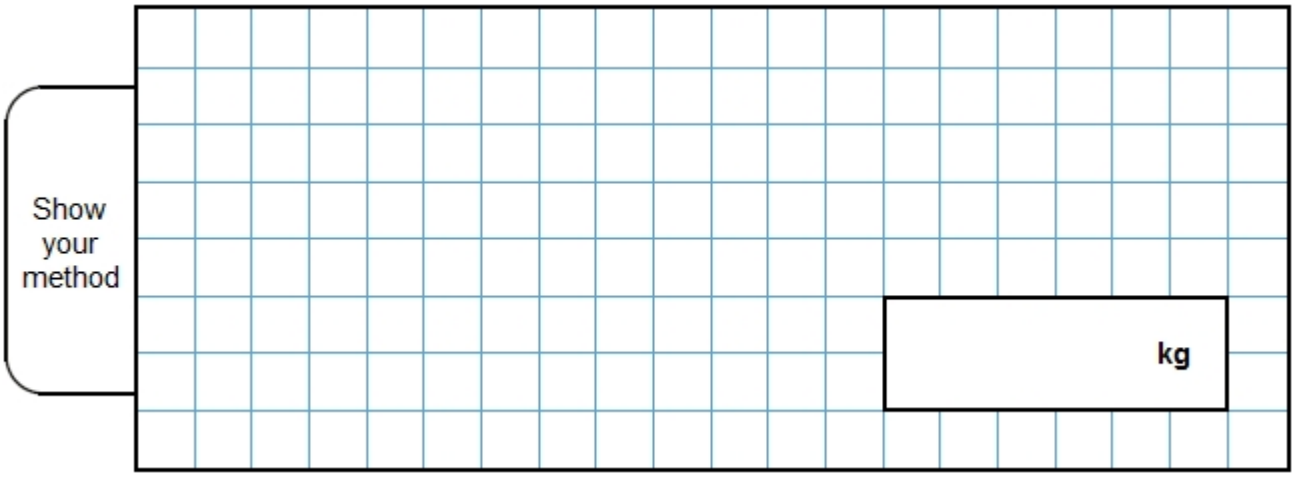
Explain why Megan is **correct**.

1 mark

Friday is her last day.

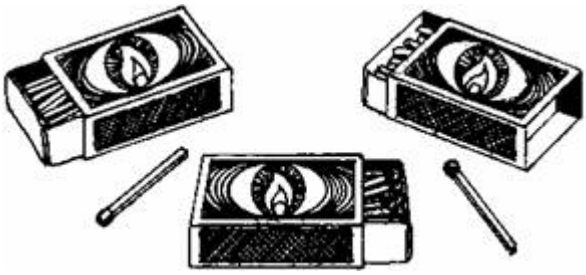
She wants to increase her average to **17 km**.

How many kilometres must she walk on Friday?



2 marks

7.



Carol counts the matches in **10** boxes.

She works out that the **mean** number of matches in a box is **51**

Here are her results for **9 boxes**.

1st January						
48	49	50	51	52	53	54
	✓ ✓ ✓	✓ ✓	✓	✓		✓ ✓

Calculate how many matches are in the **10th box**.

Show your method

2 mark

Mark schemes

1. (a) $\frac{2}{5}$

Accept equivalent fractions and decimals e.g. $\frac{4}{10}$ *and 0.4*

1

(b) Award **TWO** marks for the correct answer of 10.7

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- 8.1 + 9.3 + 11.9 + 11.8 + 12.4 = 53.5
  53.5 ÷ 5

*Answer need not be obtained for the award of **ONE** mark.*

Any correct rounding or truncating does not negate an appropriate method.
Any value which does not result from correct rounding or truncating implies an additional step not shown.

Up to 2m

[3]

2. Award **TWO** marks for the correct answer of £5.50

If the answer is incorrect, award **ONE** mark for:

- sight of 22 ÷ 4

OR

- evidence of appropriate method, e.g.

  - 3 tickets cost 3 × £5 = £15
    1 ticket costs £7
    £15 + £7 = £22
    £22 ÷ 2 ÷ 2

*For **ONE** mark, accept an answer of £550, £550p or £5.5 as evidence of appropriate method.*

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2m

[2]

3. (a) Draws an arrow pointing to 12

Accept unambiguous indication of 12, eg:

- *an arrow drawn within 2mm of the mark for 12*
- *12 circled*

1

(b) Draws a cross on 7

Accept unambiguous indication of 7, eg:

- *a cross drawn within 2mm of the mark for 7*
- *7 circled*

1

[2]

4. (a) Award **TWO** marks for correct answer of 2.8 cm.
If answer is incorrect, award **ONE** mark for any appropriate calculation even if the answer is incorrect, eg:

- 28 ÷ 10 = wrong answer.

*A calculation **MUST** be performed for award of one mark.*

Up to 2

(b) Award **TWO** marks for WHOLE NUMBER ANSWER in the range 40 to 50 inclusive, eg:

- 42.8

If answer is outside range, award **ONE** mark for an appropriate calculation, eg:

- 120 ÷ 28 × 10 = wrong whole number answer.
- 120 ÷ 30 × 10 = wrong whole number answer.
- 30cm is 10 books.
  60cm is 20 books.
  120cm is ... wrong answer.

*If answer is outside range, a calculation **MUST** be performed for award of one mark. If calculation is based upon incorrect answer to 16a, award **TWO** marks for correct calculation using an appropriate strategy **AND** rounding of answer to whole number, even if outside range 40–50, eg:*

- *120 ÷ answer to 16a = rounded whole number.*
  OR
  ONE mark if there is either an error in calculation or failure to round to whole number.

Up to 2

[4]

5. 160

! Measures

See guidance

2

or

Shows or implies a complete correct method, eg:

- 3 × 100 = 300

  2 × 70 = 140

  300 – 140

1

[2]

6. (a) Gives a correct explanation, eg:

- Her average is 15.75
- 14 + 23 + 13 + 13 = 63
  63 ÷ 4 is more than 15
- If the average is 15, Monday Wednesday and Thursday total 5 below and Tuesday is 8 above so the average must be > 15
- To walk an average of 15 km a day you need to have walked 60 km. Megan has walked 63 km so she is over the average of 15 km

Accept minimally acceptable explanation, eg:

- *63 ÷ 4*
- *63 ÷ 4 =16*
- *63 ÷ 4 = 15 r 3*

***Do not accept** incomplete or incorrect explanation, eg:*

- *If you add up how far she walked in four days and divide by 4, it's more than 15*
- *14 + 23 + 13 + 13 = 63*
- *63 ÷ 4 = 15*

1

(b) 22

! Follow-through of incorrect total or average

*For 2m or 1m, accept follow-through from incorrect value for the average **or** the total calculated for part (a) used correctly in part (b), eg:*

- *for 16 as answer in part (a), award 2 marks for 85 – 4 × 16 = 21*

2

or

85 seen (*the total for 5 days*)

! Correct embedded solutions

Award 1m, for a response which shows 22 as the embedded solution to their working

OR

Shows or implies a complete correct method, eg:

- (17 × 5) − 14 − 23 − 13 − 13
- 17 × 5 = 80 (*error*)
  80 − 63

1

[3]

7. Award **TWO** marks for the correct answer of 52

If the answer is incorrect award **ONE** mark for evidence of an appropriate method, eg

51 × 10 = 510

so number of matches =

510 – ((49 × 3) + (50 × 2) + (54 × 2) + 51 + 52)

The calculation need not be completed for the award of the mark.

Up to 2

[2]