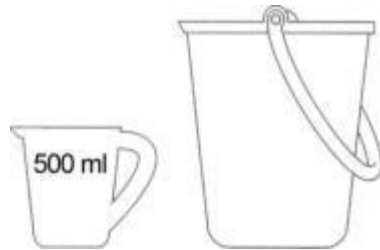


Q1.

Measuring

Steve needs to put **1 litre** of water in a bucket.

He has a **500 ml** jug.



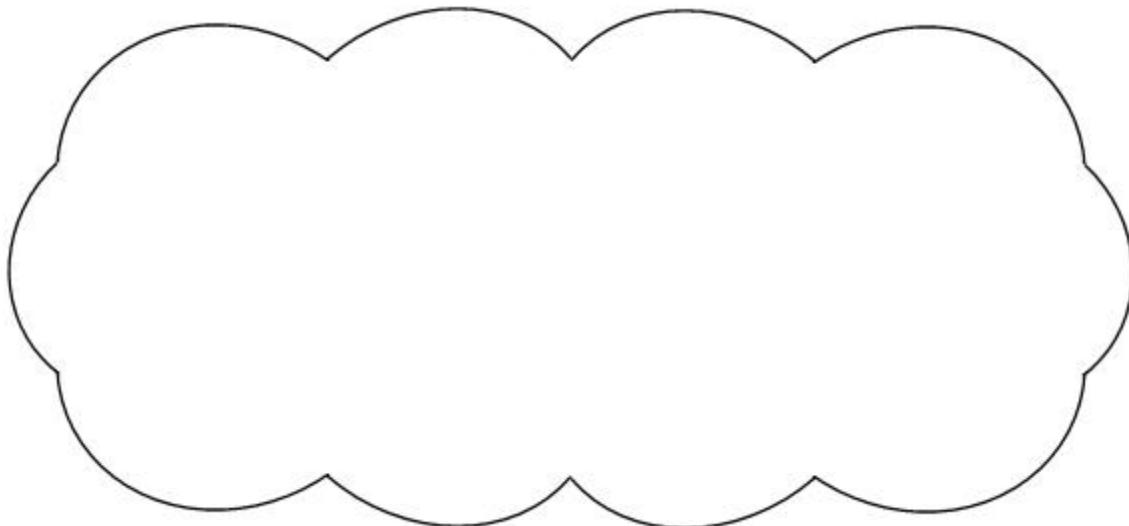
Explain how he can measure 1 litre of water.

A large, empty, cloud-shaped outline intended for the student to write their explanation.

1 mark

Q2.

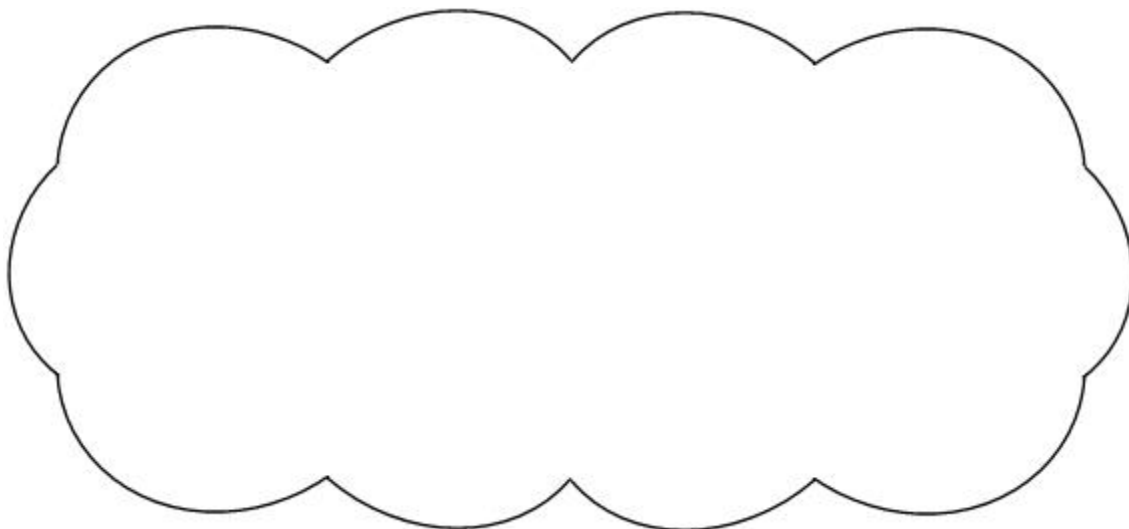
Explain why 125 is a **cube** number.



1 mark

Q3.

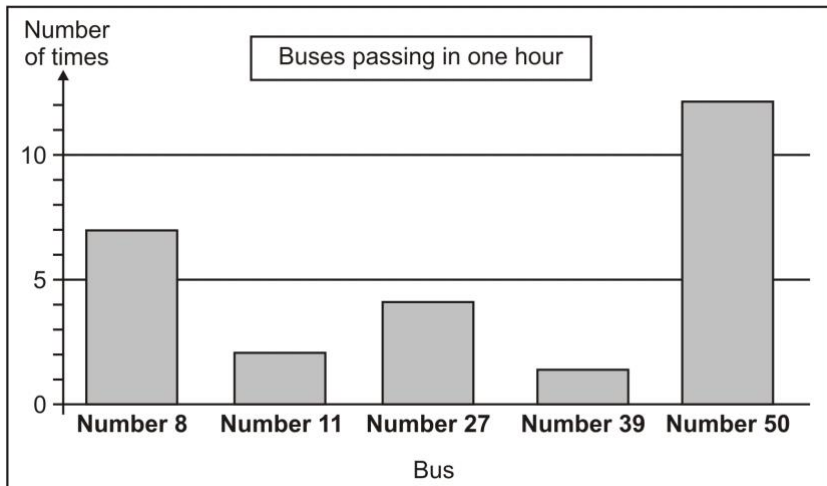
Explain why 16 is a **square number**.



1 mark

Q4.

Anne makes a graph of buses passing a school in 1 hour.



How many times does a **Number 27** bus pass in the hour?

1 mark

Anne says,

"Bus number 39 passes least often in the hour."

Explain how the graph shows this.

1 mark

1 mark

Q5.

Ben and Felicity are both trying to raise the same amount of money for charity.

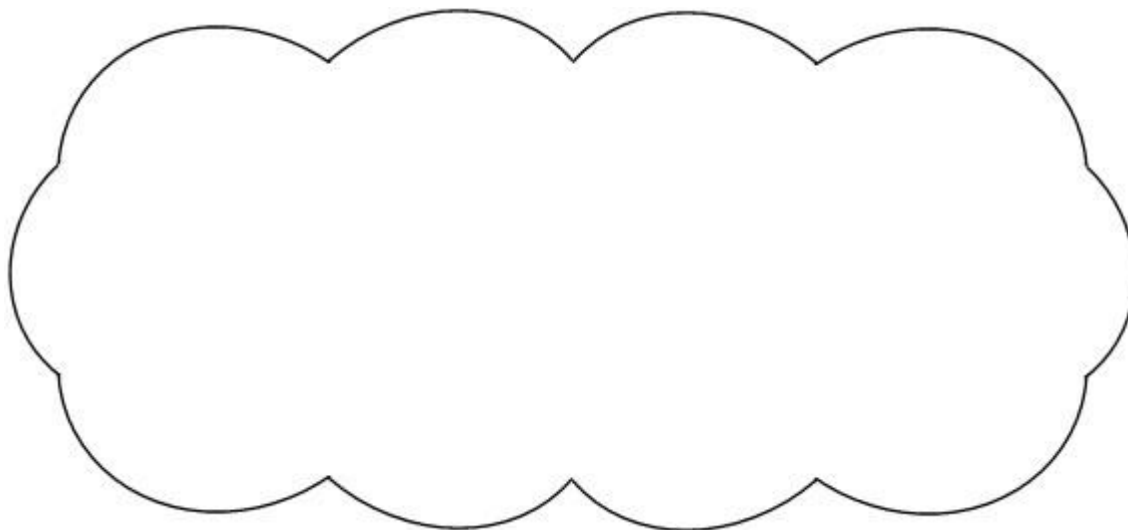
So far, Ben has raised $\frac{3}{4}$ of the amount.

Felicity has raised $\frac{5}{7}$ of the amount.

Express the fractions with a common denominator.

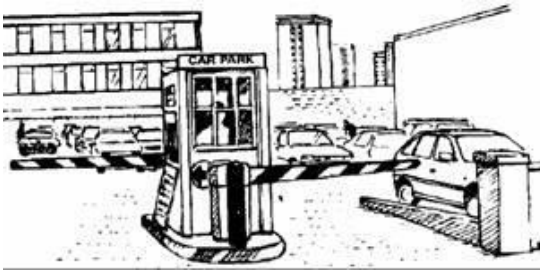
and

Explain who is closest to meeting their target.



1 mark

Q6.



Car Park charges	
Time	Charge
up to 1 hour	20p
1 to 2 hours	50p
2 to 3 hours	£1.00
3 to 4 hours	£1.70
over 4 hours	£5.00

Emma parks her car at **9.30 am**.

She collects the car at **1.20 pm**.

How much does she pay?

1 mark

Dan and Mark both use the car park.

Dan says,

'I paid exactly twice as much as Mark but I only stayed 10 minutes longer'.

Explain how Dan could be correct.

1 mark

Q7.

Ahmed says,

“To simplify a fraction, you just halve the numerator and halve the denominator.”

Is Ahmed’s statement always true, sometimes true or never true?

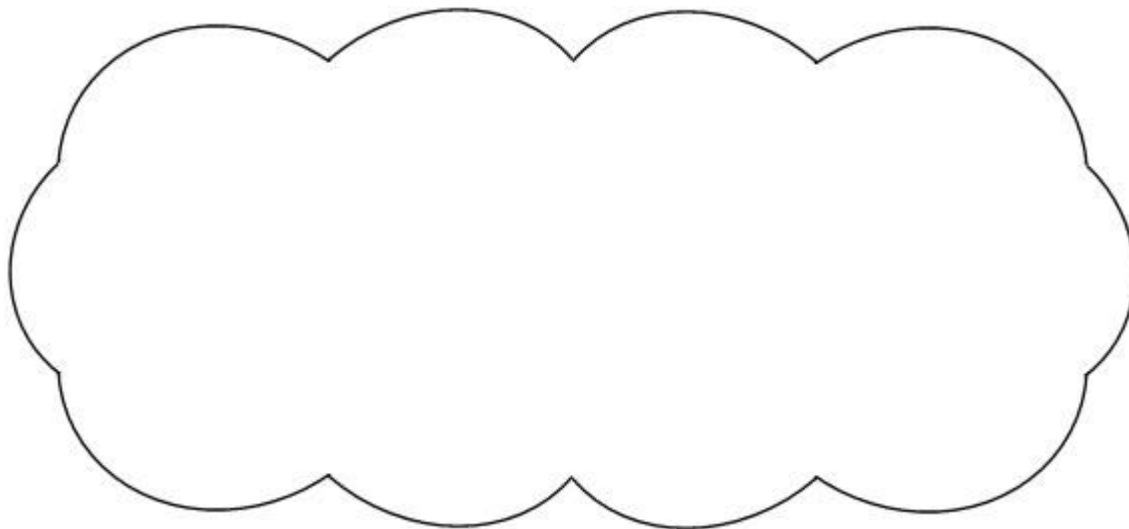
Circle your answer.

always

sometimes

never

Explain your answer.



1 mark

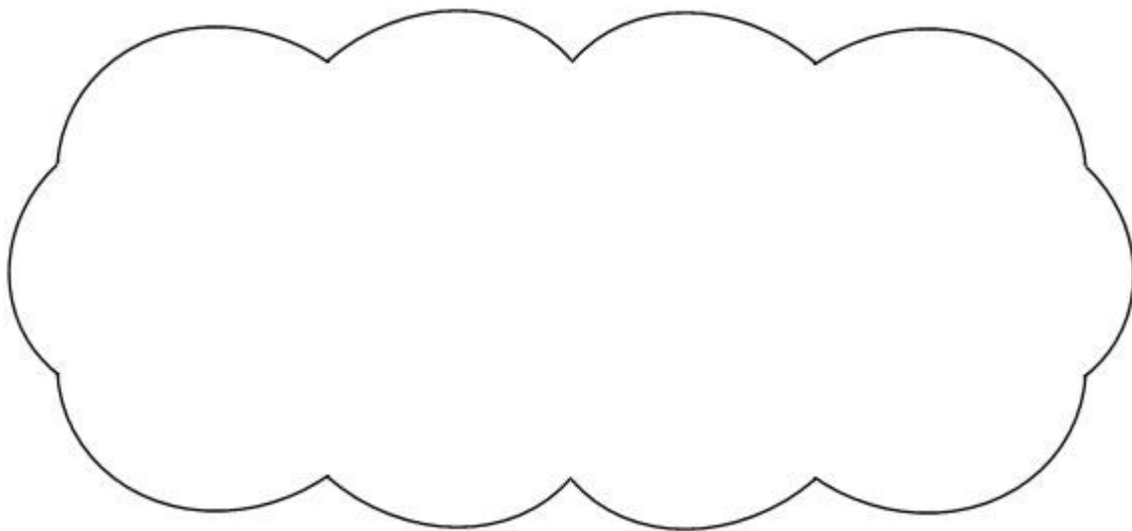
Q8.

$$3,128 \div 23 = 136$$

Use the division calculation above to solve the following calculation.

$$24 \times 136 =$$

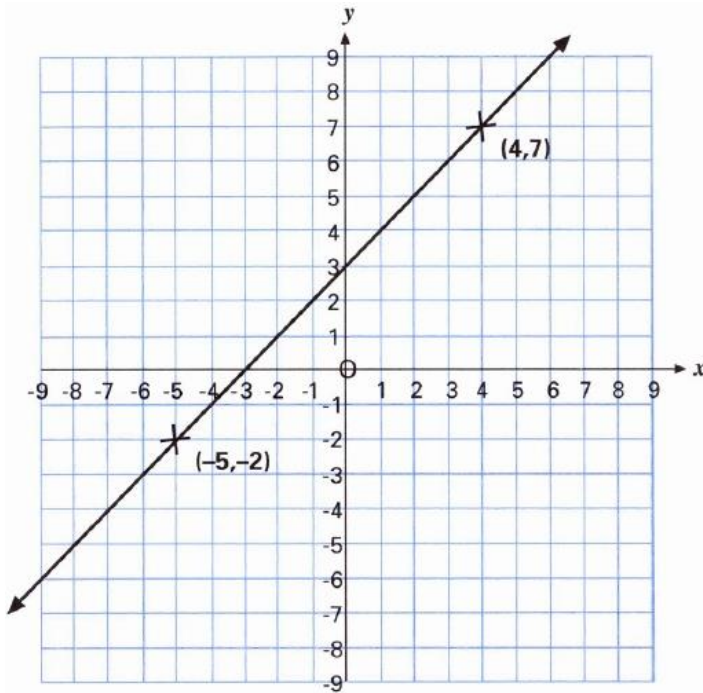
Explain your answer.



1 mark

Q9.

The points $(-5, -2)$ and $(4, 7)$ lie on the same line.



If the line were extended, would it pass through point $(-100, -103)$?

Circle **Yes** or **No**.

Yes / No

Explain how you know.

A large, empty, cloud-shaped outline for writing an explanation.

1 mark

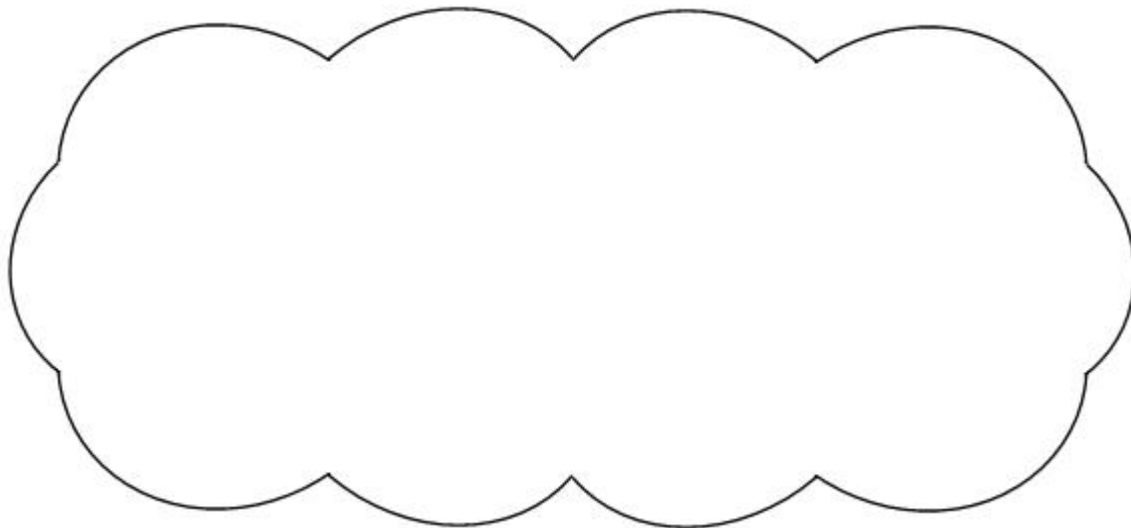
Q10.

Here is a number sequence.

Write the **missing** number.

1 3 6 10

Explain how you worked it out.



2 marks

Q11.

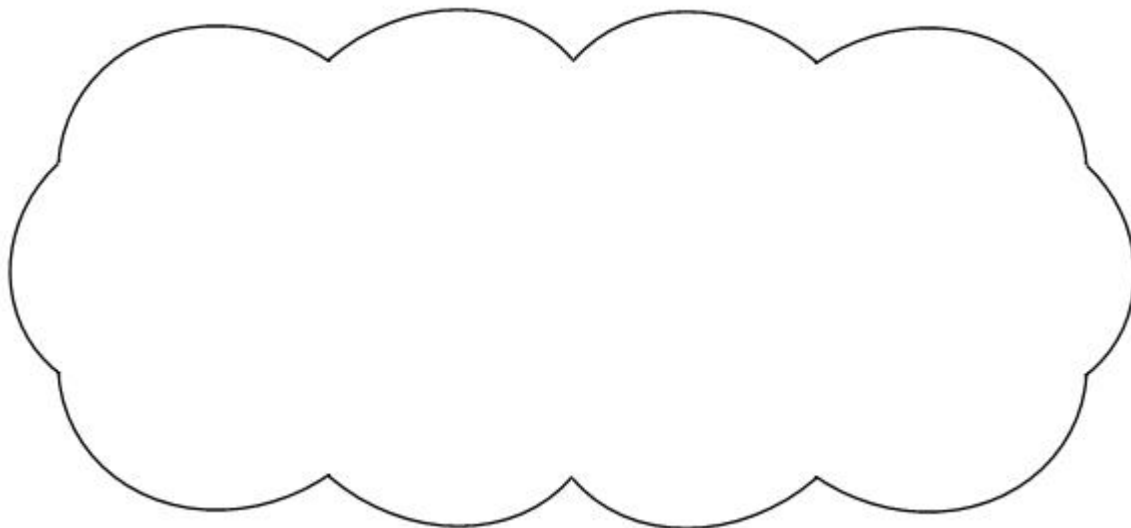
There are 104 children at Delton School

48 children are girls

(a) How many are boys?

1 mark

(b) Explain how you worked this out.



1 mark

Q12.

A **drink** and a **box of popcorn** together cost **90p**.



2 drinks and a **box of popcorn** together costs **£1.45**



What does a **box of popcorn** cost?

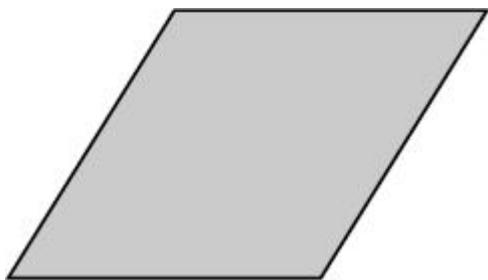
1 mark

Explain how you got your answer.

A large, empty, cloud-shaped area with a scalloped border, intended for the student to write their explanation.

1 mark

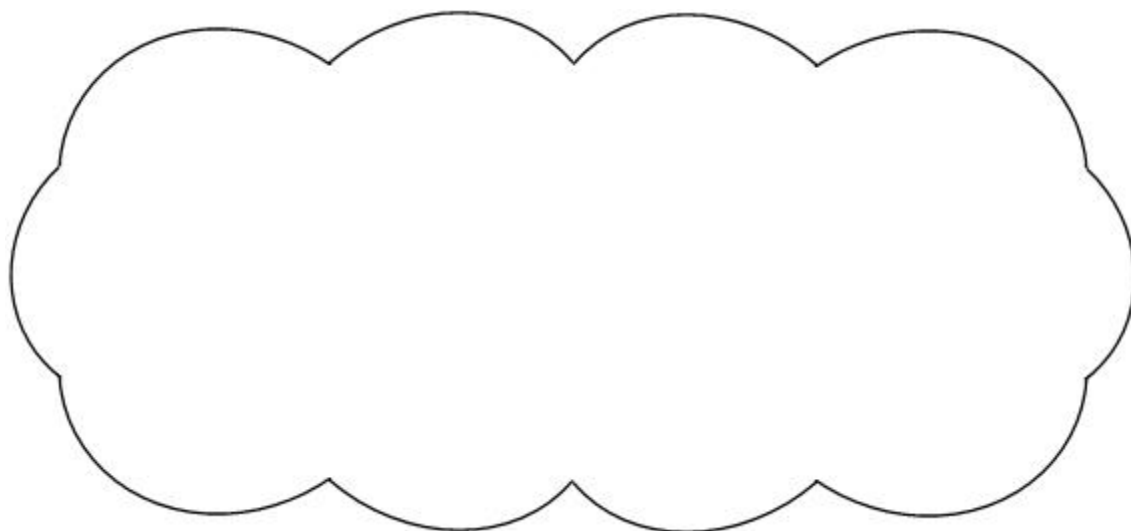
Q13.



Jack says,

“My rhombus is a regular quadrilateral.”

Explain why Jack is **not** correct.



1 mark

Mark schemes

Q1.

Gives a correct explanation that shows the relationship between the volume of the jug and one litre

eg

- It's 2 jugs
- Fill the jug once, pour it in the bucket and fill it again
- He uses 500 + 500
- A jug is half a litre
- Empty into the bucket twice

Accept minimally acceptable explanation

eg

- *Fill it twice*
- *500ml × 2*

Accept jug assumed to be calibrated

eg

- *Put 200ml in the jug, then repeat to give a total of 5 times*

U1

[1]

Q2.

Explanation that recognises that 125 is $5 \times 5 \times 5$

[1]

Q3.

Explains that 4×4 or 4 squared equals 16 (or similar) or that 16 is the square of a whole number (integer) or similar or that 6 square can be arranged as a square

[1]

Q4.

(a) 4

1

(b) Statements which imply that 39 has the shortest bar, eg:

- It's got the smallest bar.
- 1 is less than the others.

Do not accept statements which are not specific or do not imply comparison, eg:

- **The graph shows the number of each bus.**

Do not accept answers which only repeat words of question, eg:

- **39 is least.**

1

(c) 5

1

[3]

Q5.

Award **ONE** mark for correctly expressing the fractions with a common denominator along with an explanation identifying Ben as being closer to meeting their target, e.g.:

$\frac{21}{28}$ and $\frac{20}{28}$ **or equivalent**

'Ben is closer to meeting their target because ...

- 3/4 is greater than 5/7 when expressed with a common denominator.'
- 21/28 is 1/28 larger than 20/28.'
- 3/4 is one more 28th than 5/7 when expressed with a common denominator.'

[1]

Q6.

(a) £1.70 **OR** 170p

*Accept 1.70 **OR** 170 **OR** unambiguous indication on the table.*

1

(b) Explanation which suggests that Dan stayed just over 2 hours and Mark stayed just under 2 hours, eg

'Dan stayed 2 hours and 5 minutes so he paid £1 but Mark stayed 5 minutes less than 2 hours and paid 50p';

'Mark stayed just under 2 hours and Dan stayed the next price up which is double'.

*Accept references to '2 hours' as part of the 1 to 2 hours charging band **OR** as part of the 2 to 3 hours charging band.*

Do not accept vague or arbitrary answers, eg

'If you pay more you stay longer';

'Mark went before the next hour, but Dan didn't';

'The ten minutes could have passed one hour'.

Do not accept explanations which refer to the wrong charging band, eg

'Mark stayed 4 hours and Dan stayed 4 hours and 10 minutes'.

1

[2]

Q7.

An explanation and/or examples that shows that the statement is '**sometimes**' true, e.g.:

- 'If both numbers are even / divisible by two they can be simplified by dividing both numerator and denominator by 2. This would not work for odd number fractions that

are factors of the same number, e.g., 3/15 can be simplified to 1/5 but dividing the numerator and denominator by 5.'

- 'Fractions such as 2/4 and 2/6 can be simplified by dividing both numerator and denominator by 2 because both digits are even. Fractions such as 3/6 and 7/21 cannot as they include odd numbers. They can be simplified by dividing by a different common factor e.g., 3 for 3/6 and 7 for 7/21. Hence the statement is 'sometimes' true.'
- '2/4 and 2/8 can be simplified by dividing by 2. 3/6 and 6/15 can also be simplified but by using a different common factor, i.e., 3. Hence the statement is sometimes true.'

Do not accept vague or incomplete answers, e.g.:

- 'Some numbers can be divided by two but others can't.'
- '3/6 can't be simplified by dividing by 22.'

[1]

Q8.

Award **ONE** mark for the correct answer of 3,264 with an explanation correctly stating how one fact can be used to solve another, related calculation, e.g.:

$$24 \times 136 = \boxed{3,264}$$

- '136 × 24 = 136 × 23 + 136. 3,128 + 136 = 3,264'
- '136 × 23 = 3,128 so 136 × 24 = 136 × 23 + 136 = 3,264'.
- 'If I use the inverse, I know that 136 × 23 = 3,128. To find 136 × 24 I simply need to add 136 to the answer.'

Do NOT accept vague or incorrect answers, e.g.:

- 'you just need to add one more'
- 'Add 136'
- etc

[1]

Q9.

(a) No **AND** appropriate supporting reason, eg

'Because the **y** number must be 3 bigger than the **x** number'
'**y** is always bigger than **x** but 103 is less than 100 when you are minus'
'Because the co-ordinates are the wrong way round'

No mark is awarded for 'No' alone.

*If the child has not ticked 'No' award one mark only if the explanation makes it clear why the line does **not** pass through the point (−100, −103).*

Do not accept a correct explanation if 'Yes' has been clearly indicated.

1

(b) $y = x + 3$ OR $y = 3 + x$

1

Q10.

- (a) 15 **OR** 19 **OR** any other number supported by acceptable explanation in part (b)

*Accept 15 **OR** 19 irrespective of explanation in part (b).*

1

- (b) Explanation which is consistent with the sequence given in part (a)

If a correct answer to 11a appears and is justified by the explanation, and the box in 11a was left blank, then award the mark for part (a).

Do not accept vague or arbitrary explanations such as:
'every time you add you go up';
'it does the same pattern';
'the numbers between keep going up';
'I just guessed'.

Accept explanations in the form of numerical indications on the number sequence. Explanation must be sufficiently clear to enable the calculation of missing number.

1

[2]

Q11.

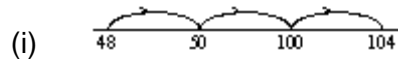
- (a) 56 (boys)

1

- (b) Chooses an appropriate sequence of computation which indicates that the difference between 48 and 104 needs to be calculated **or** gives a similar verbal explanation

Award the mark even if the answer is incorrect if there is evidence of an appropriate calculation. Any horizontal or vertical method of setting out (or mixture of both is acceptable).

Suitable methods might include:



(ii) $104 - 40 = 64$
 $64 - 8 = 56$

(iii)
$$\begin{array}{r} 104 \\ - 48 \\ \hline 56 \end{array}$$

1

[2]

Q12.

- (a) 35p

Answer to 17a may be embedded in answer to 17b. In this case, award one mark for correct answer.

1

(b) Explanation which includes reference to any appropriate method even if the answer is incorrect, eg:

- I took 90 from 145 and took my answer from 90
- If a drink and popcorn costs 90p you add to it however much it takes to make 145, which is 55p so you times 55 by 2 which is 110 and take away 145 and you get 45 (incorrect answer).

OR

a trial and improvement approach, eg:

- I thought they might both cost 45p. I guessed the drink and doubled it to make 90p, then added another 45 but I got 10 less than £1.45. So I tried 55 and it worked so the popcorn is 35

Accept appropriate numerical working elsewhere on page as adequate explanation. If there is no working and no explanation, there is no mark for 17b, even if 17a is correct.

If answer to 17a is correct, accept appropriate non-numerical answer to 17b, (ie no reference to actual amounts of money).

1

[2]

Q13.

Explanation that recognises that a regular shape must have equal length sides/edges and equal angles. (Equal length sides can be assumed within an explanation.) e.g.

- A regular shape has equal sides and equal angles; Jack's shape has equal sides but not equal angles.
- Jack is not correct because all the angles are not the same.
- Jack's rhombus is not a square and only a square is a regular quadrilateral.

[1]