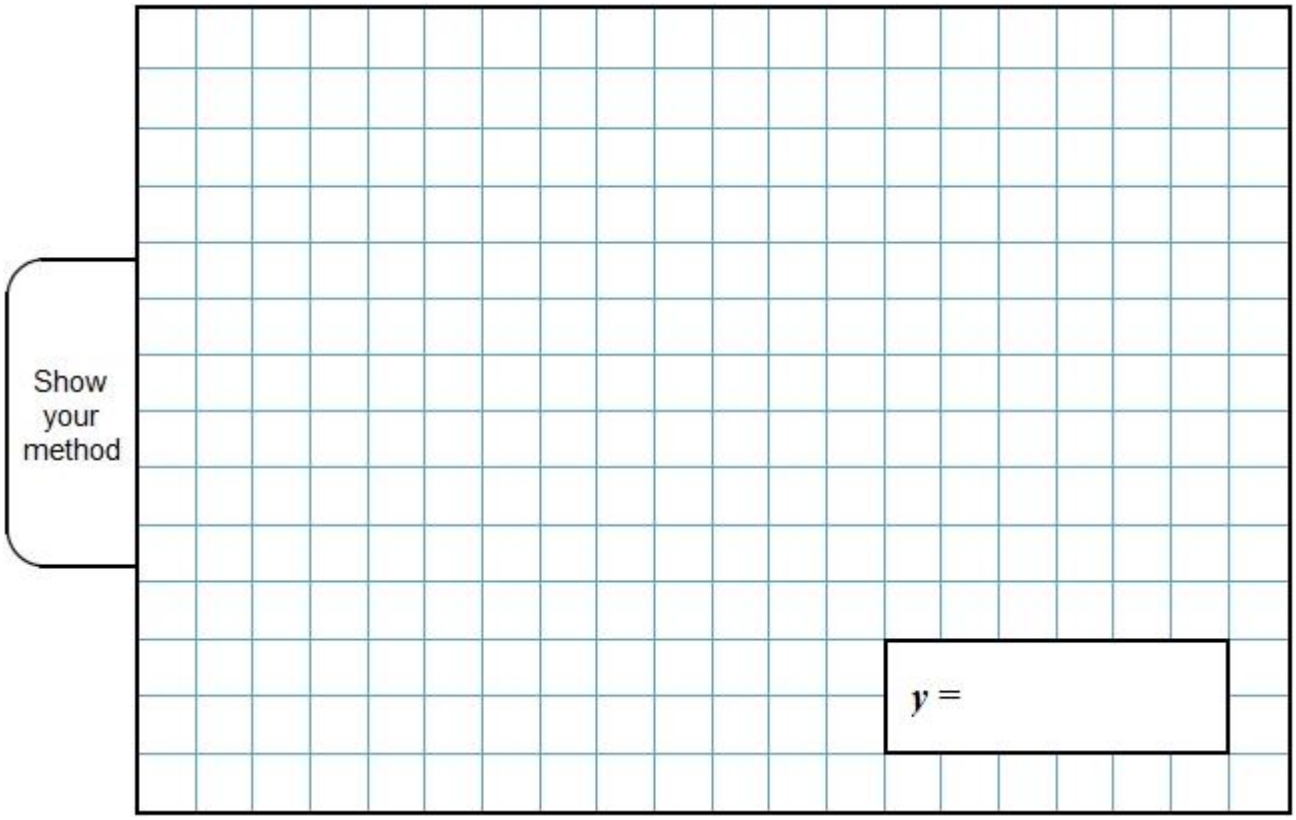
Q1.

Solve this equation.

$$7y + 12 = 5y + 40$$

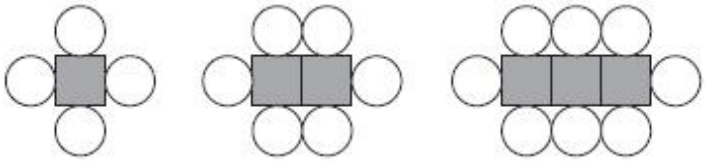


2 marks

Q2.

Here is a sequence of shapes.

Each time a square is added to a shape,
two more circles are added.



number of squares, ***s***	1	2	3
number of circles, ***c***	4	6	8

The sequence of shapes continues.

The formula for the sequence is $c = 2s + 2$

Calculate the number of circles when the
number of squares in a shape is **150**.

circles

1 mark

How many squares are there in a shape that has **100** circles?

Show your method

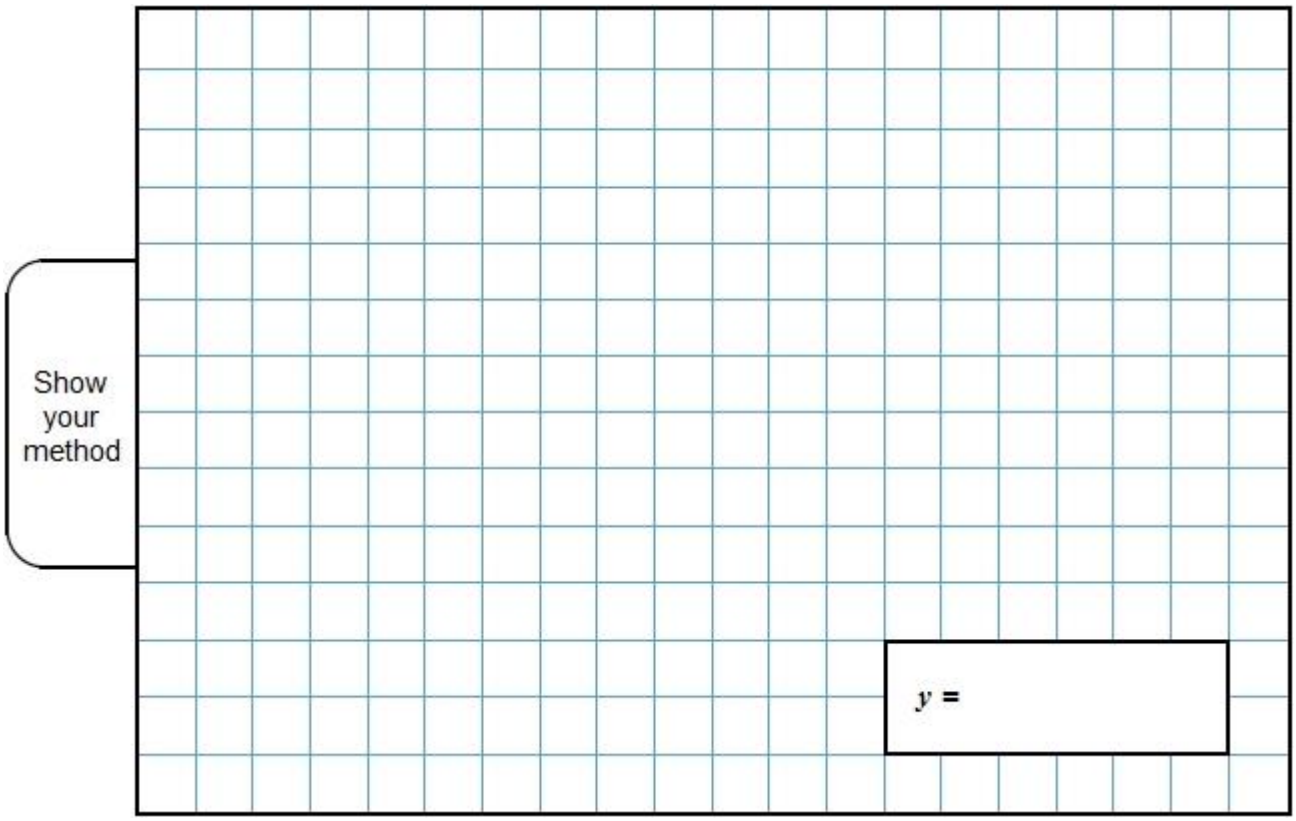
squares

2 marks

Q3.

Solve this equation to find the value of y.

$8(y + 12) = 100$



2 marks

Q4.

The box below shows **all** the possible values for x.

x is a whole number.

$40 < x < 45$

x could be *41, 42, 43 or 44*

Write **all** the possible values for k.

k is a whole number.

$29 < 2k < 35$

k could be

_____

Write **all** the possible values for w.

w is a whole number.

$18 < 3w + 1 < 24$

w could be

_____

3 marks

Q5.

Look at these equations.

$a = 2b$

$b = 3c$

Which equation below is also true?

Put a ring round the correct one.

$b = 2a$ $\quad a = 2b + 3c$ $\quad a = 5c$

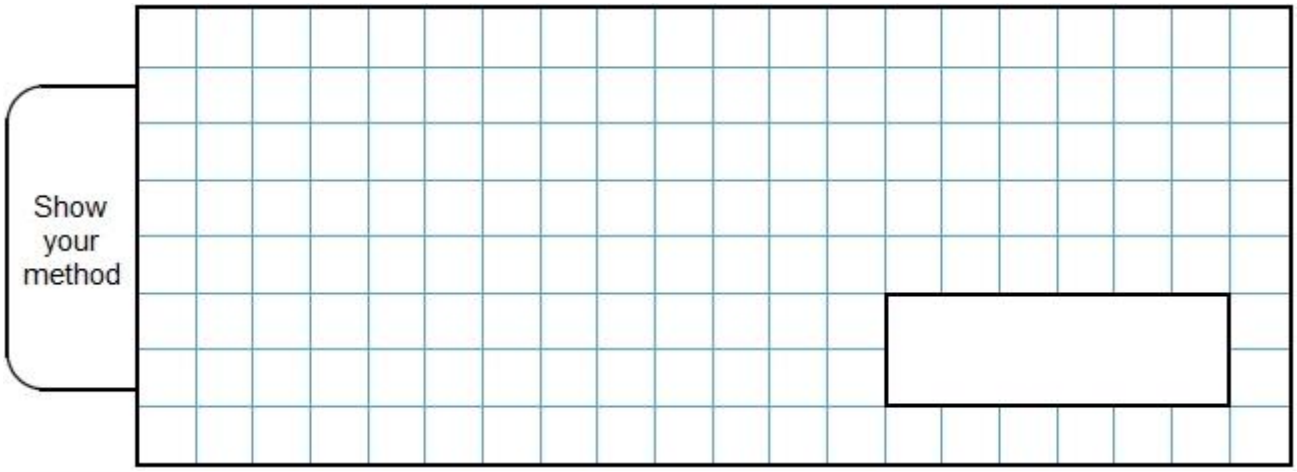
$a = 6c$ $\quad a + b = 5$

1 mark

Q6.

Find the value of t in this equation.

$$33 - 8t = 15$$



2 marks

Q7.

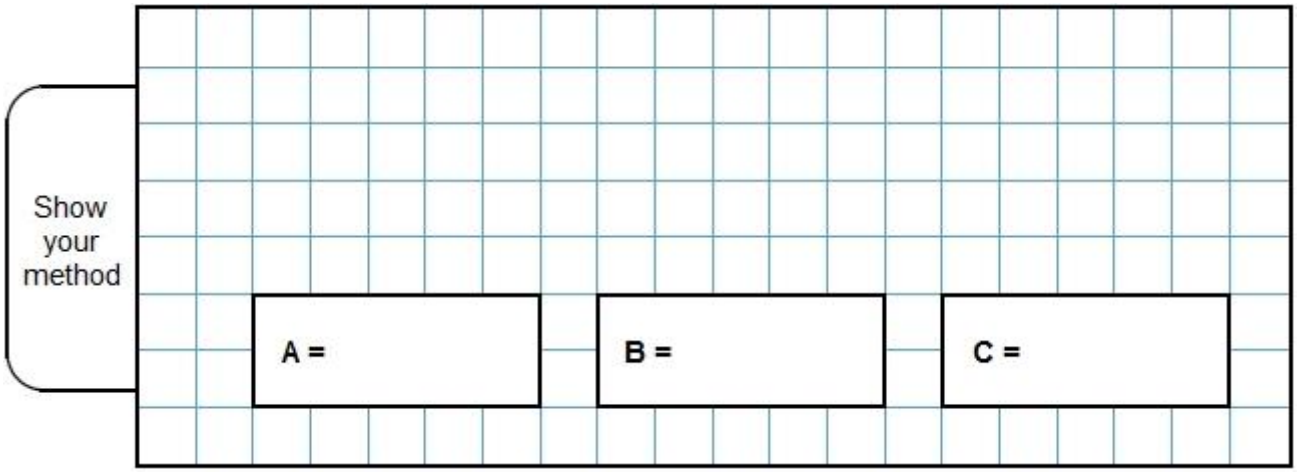
A, B and C stand for three different numbers.

The mean of A and B is 40

The mean of B and C is 35

A + B + C = 100

Calculate the values of **A**, **B** and **C**.



2 marks

Q8.

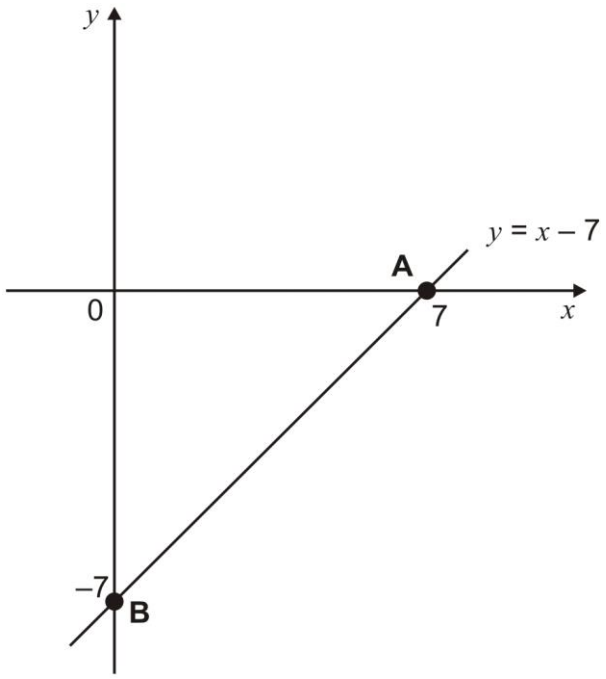
Draw a line from each of the expressions on the left to an equivalent expression on the right.

	12
	w + 12
(w + 5) + (w – 7)	
	–2
	2w + 12
(w + 5) – (w + 7)	
	w – 2
	2w – 2

2 marks

Q9.

The diagram shows the graph of $y = x - 7$



Write the coordinates of one point on the line **between A and B**.

(,)

1 mark

Q10.

The **sum** of two numbers is **5**

The **difference** between the numbers is **0.5**

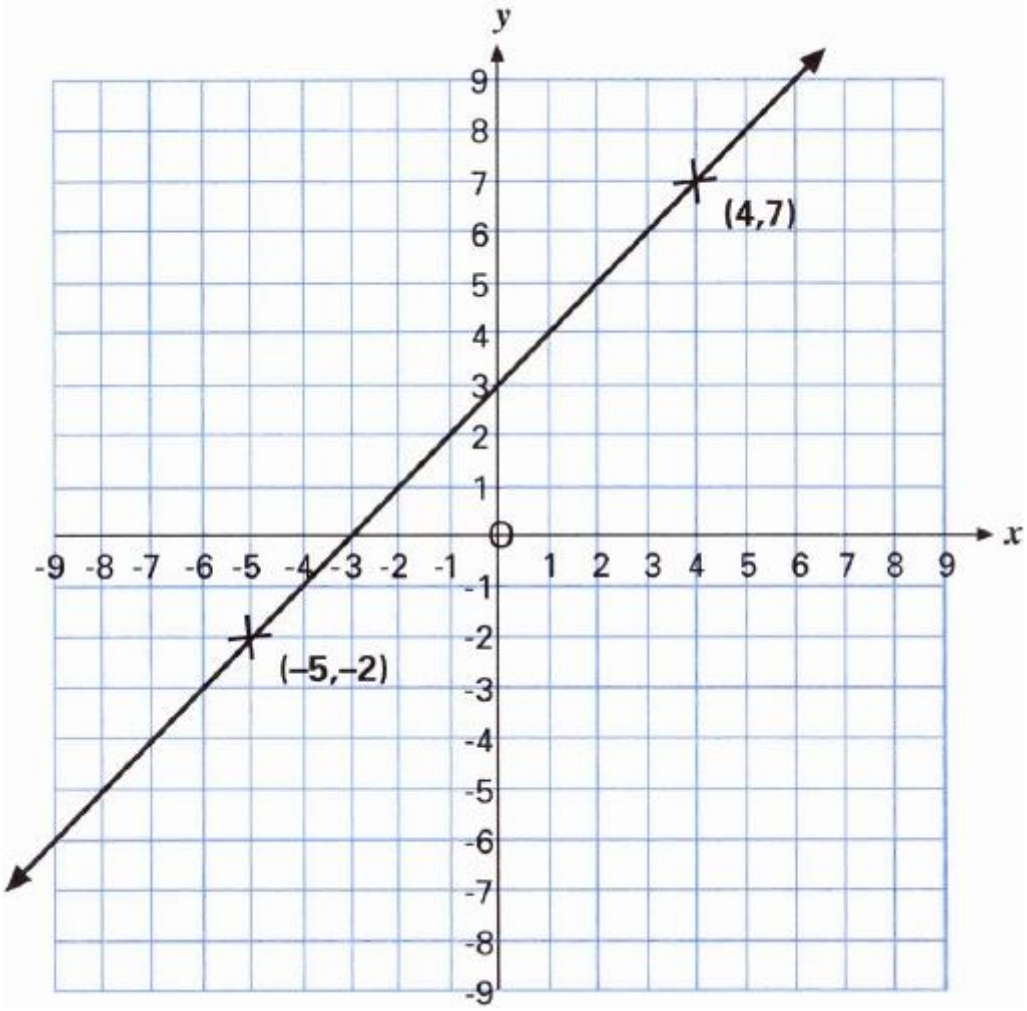
What are the numbers?

Show your method

2 mark

Q11.

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

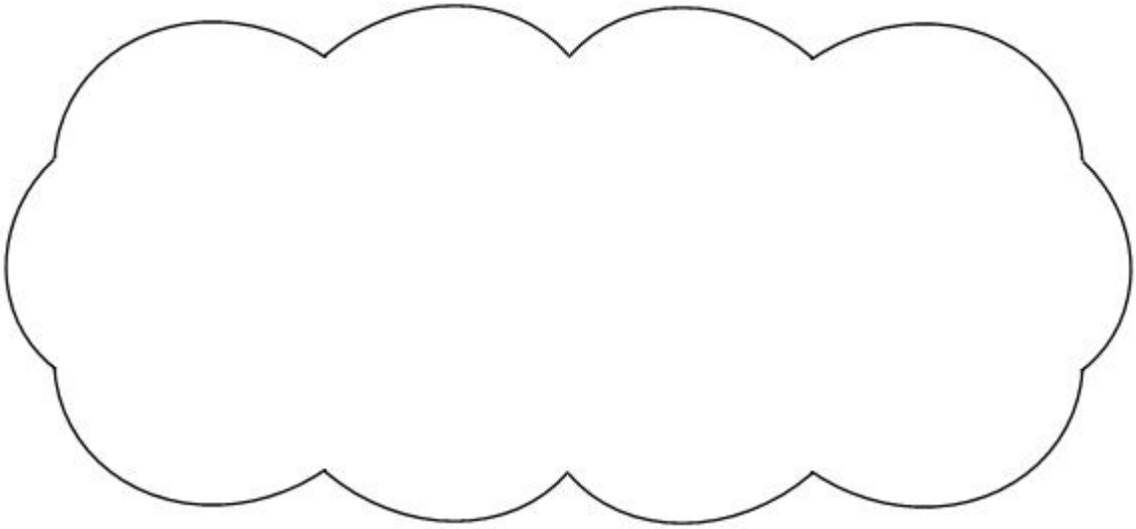


If the line were extended, would it pass through point **(−100, −103)**?

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

Yes / No

Explain how you know.



1 mark

Use x and y to write the **equation** of the line.

$y =$

1 mark

Q1.

14

! Algebra

See guidance

2

or

Shows or implies a correct first step of algebraic manipulation that either reduces the number of terms or collects variables on one side of the equation and numbers on the other, eg:

- $2y + 12 = 40$
- $7y = 5y + 28$
- $7y - 5y = 40 - 12$
- $2y = 28$
- $28 \div 2$

! Condone correct embedded solutions

Award 1 mark, for a response which shows 14 as the embedded solution to their working, eg:

- *$7y + 12 = 5y + 40$*
  $(7 \times 14) + 12 = (5 \times 14) + 40$
  $110 = 110$

1

[2]

Q2.

(a) 302

1

(b) 49

2

or

Shows or implies a correct first step of algebraic manipulation that either reduces the number of terms **or** collects variables on one side of the equation and numbers on the other, eg:

- $2s = 100 - 2$
- $s = 98 \div 2$

! Correct embedded solutions

Award 1 for a response which shows 49 as the embedded solution to their working

OR

Shows or implies a complete correct method, eg:

- (100 – 2) ÷ 2

1

[3]

Q3.

$\frac{1}{2}$ or equivalent

! Algebra

Accept equivalent fractions or decimals

2

or

Shows or implies a correct first step of algebraic manipulation that either reduces the number of terms **or** collects variables on one side of the equation and numbers on the other **or** correctly removes the brackets, eg:

- $8y + 96 = 100$
- $y + 12 = 100 \div 8$
- $8y = 4$

OR

Shows or implies a complete correct method, eg:

- 100 ÷ 8 = 12 *(error)*
  12 – 12 = 0
- 25 × 4 = 100
  12.5 × 8 = 100
  12.5 – 12

1

Do not accept *a first step of algebraic manipulation which has a conceptual error, eg:*

- *y + 12 = 100*
- *y + 96 = 100*
- *8y + 12 = 100*

! Correct embedded solutions

Award 1m for a response which shows $\frac{1}{2}$*, or equivalent, as the embedded solution to their working*

[2]

Q4.

Gives all three possible values for k, in any order, eg 15, 16, 17

1

Gives both possible values for w, in either order, eg 6, 7

1

As evidence of a correct method:

Gives a completely correct response to at least one question part

OR

Makes not more than three errors or omissions throughout the question, eg:

- For the 1st part: 15, 16, 17, 18 [one error]
  For the 2nd part: 7 [one omission]

- For the 1st part: 14, 15, 16 [one error, one omission]
  For the 2nd part: 6, 7, 8 [one error]

- For the 1st part: 15 [two omissions]
  For the 2nd part: 7 [one omission]

OR

Includes non-integers within an otherwise correct response for at least one question part, eg:

- For the 1st part: 15, 15.5, 16, 16.5, 17

- For the 1st part: 14.5