LJH Answers

Write your name here

Surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics

Paper 1 (Non-Calculator)

Foundation Tier

Thursday 24 May 2018 – Morning
Time: 1 hour 30 minutes

Paper Reference
1MA1/1F

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Total Marks

ND058757035

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P48527A

6/7/7/7/7/8/7/1/1/

P 4 8 5 2 7 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write 6324 correct to the nearest thousand.

6000 B1

(Total for Question 1 is 1 mark)

2 (a) Write the following numbers in order of size.
Start with the smallest number.

−6 6 −5 0 12

−6, −5, 0, 6, 12 B1

(1)

(b) Write the following numbers in order of size.
Start with the smallest number.

0.078 0.780 0.870 0.708

B1

0.078, 0.708, 0.780, 0.870

(1)

(Total for Question 2 is 2 marks)

3 Write 20% as a fraction.

A1

$\frac{20}{100} = \frac{2}{10} = \frac{1}{5}$

(Total for Question 3 is 1 mark)

4 Here is a list of four fractions.

$$\frac{4}{16} \qquad \frac{2}{8} \qquad \frac{15}{60} \qquad \frac{3}{9}$$

One of these fractions is **not** equivalent to $\frac{1}{4}$

Write down this fraction.

$\frac{3}{9}$ A1

(Total for Question 4 is 1 mark)

5 Write down the first even multiple of 7

14 B1

(Total for Question 5 is 1 mark)

6 (a) Simplify $3 \times 4t$

$12t$ A1

(1)

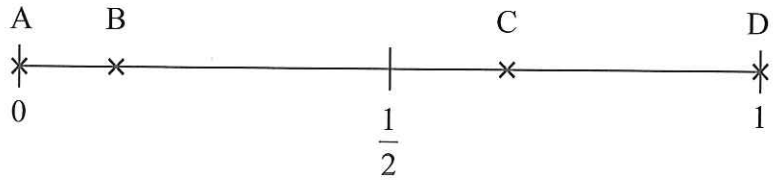
(b) Simplify $8a - 3a + 2a$

$7a$ A1

(1)

(Total for Question 6 is 2 marks)

7 Here is a probability scale.
It shows the probability of each of the events A, B, C and D.



(a) Write down the letter of the event that is certain.

D B1

(1)

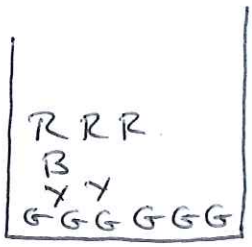
(b) Write down the letter of the event that is unlikely.

B B1

(1)

There are 12 counters in a bag.

3 of the counters are red.
1 of the counters is blue.
2 of the counters are yellow.
The rest of the counters are green.



Caitlin takes at random a counter from the bag.

(c) Show that the probability that this counter is yellow or green is $\frac{2}{3}$

B1 for 6 Green Counters

$P(Y \text{ or } G) = \frac{8}{12} = \frac{2}{3}$ M1 A1 *

OR // $\frac{8}{12} \xrightarrow{\div 2} \frac{4}{6} \xrightarrow{\div 2} \frac{2}{3}$

(3)

(Total for Question 7 is 5 marks)

8 3 kg of meat costs £54
Nina buys 2 kg of the meat.

Work out how much Nina pays.

$$3\overline{)54} = 18$$

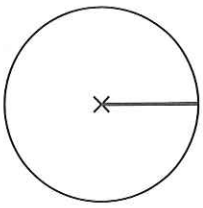
3 kg : £54
÷3 ↓ ↓ ÷3
1 kg : £18
×2 ↓ ↓ ×2
2 kg : £36

M1 any suitable method

£ 36 A1

(Total for Question 8 is 2 marks)

9 The centre of this circle is marked with a cross (×).

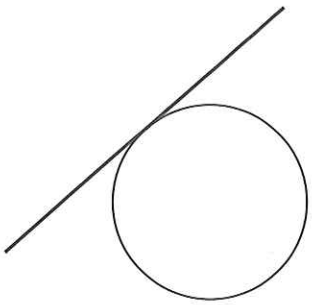


(a) Write down the mathematical name of the straight line shown in the circle.

radius B1

(1)

(b) Write down the mathematical name of the straight line that is touching the circle.



B1
tangent

(1)

(Total for Question 9 is 2 marks)

10 Tim and three friends go on holiday together for a week.

The 4 friends will share the costs of the holiday equally.

Here are the costs of the holiday.

£1280 for 4 return plane tickets
£640 for the villa
£220 for hire of a car for the week

Work out how much Tim has to pay for his share of the costs.

£1280
P1 £ 640
£ 220 +
£2140
1 1

process to find total cost

Total cost = £2140

Tim will pay $\frac{1}{4}$ of the cost

$$4\overline{)2140}^{20} = 535$$

P1 process to find 1/4 of cost

Tim pays £535

A1 cao

£ 535

(Total for Question 10 is 3 marks)

11 Write down an example to show that each of the following two statements is **not** correct.

(a) The factors of an even number are always even.

factors of 20 are (1), 2, 4, (5), 10, 20

1 and 5 are not even

C1

any correct example

.....

(1)

(b) All the digits in odd numbers are odd.

27 is an odd number but the digit 2 is even

C1

any correct example

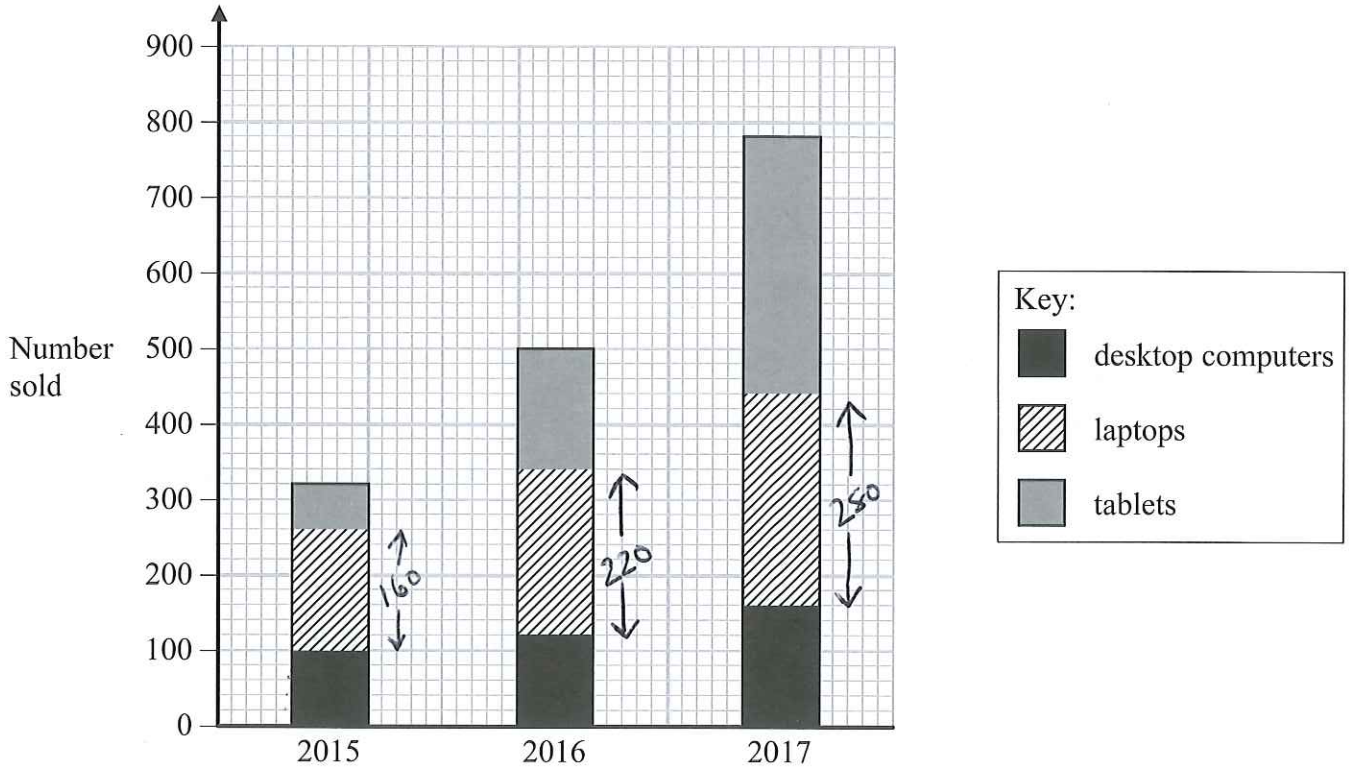
.....

(1)

(Total for Question 11 is 2 marks)

12 A shop sells desktop computers, laptops and tablets.

The composite bar chart shows information about sales over the last three years.



(a) Write down the number of desktop computers sold in 2015

100 B1

(1)

(b) Work out the total number of laptops sold in the 3 years.

160
220
250 +
660

B1 any correct number
M1 method to find total

A1
660 cao

(3)

(c) State the item that had the greatest increase in sales over the 3 years.
Give a reason for your answer.

tablets C1

the size of the bar increased each year C1
by the greatest amount

(2)

Alex says,

"In 2017, more tablets were sold than desktop computers. This means the shop makes more profit from the sale of tablets than from the sale of desktop computers."

(d) Is Alex correct?
You must justify your answer.

No. Even though more tablets were sold we don't know how much profit is made from each tablet compared to the profit made from each desktop.

C1

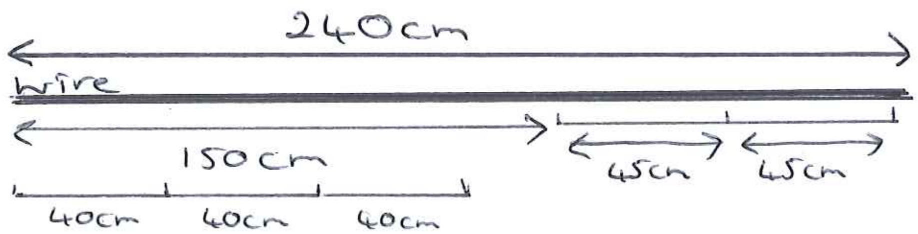
(1)

(Total for Question 12 is 7 marks)

13 A piece of wire is 240 cm long.

Peter cuts two 45 cm lengths off the wire.
He then cuts the rest of the wire into as many 40 cm lengths as possible.

Work out how many 40 cm lengths of wire Peter cuts.



45 + 45 = 90

240 − 90 = 150

M1 240 − (2×45) = 150

M1 "150" ÷ 3

3

A1 cao

(Total for Question 13 is 3 marks)

P 4 8 5 2 7 A 0 9 2 4

Turn over

14 Gavin, Harry and Isabel each earn the same monthly salary.

Each month,

Gavin **saves** 28% of his salary and spends the rest of his salary

Harry spends $\frac{3}{4}$ of his salary and **saves** the rest of his salary

the amount of salary Isabel saves : the amount of salary she spends = 3 : 7

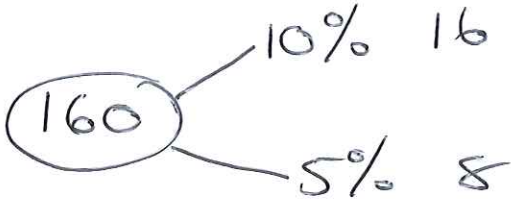
Work out who saves the most of their salary each month.
You must show how you get your answer.

Gavin saves 28% spends 72%
Harry saves 25% M1 spends 75%
Isabel saves 30% M1 spends 70% M1

Isabel saves the most of her salary each month compared to Gavin and Harry. C1

(Total for Question 14 is 4 marks)

15 Work out 15% of 160 grams.



A1 CAO

24 grams

(Total for Question 15 is 2 marks)

16 $P = 4x + 3y$

$x = 5$
$y = -2$

(a) Work out the value of P.

$4x$ $\quad$ $3y$ $\quad$ $4x + 3y$
$= 4 \times 5$ $\quad$ $= 3 \times -2$ $\quad$ $= 20 + -6$
$= 20$ $\quad$ $= -6$ $\quad$ $= 20 - 6$
B1 either 20 or -6 seen $\quad$ $= 14$

A1 cao

14

(2)

(b) Expand $4e(e + 2)$

$= 4e^2 + 8e$

M1 either term correct

A1 cao

$4e^2 + 8e$

(2)

(c) Solve $3(m - 4) = 21$

$3m - 12 = 21$ $\quad$ [+12
$3m = 33$ $\quad$ [÷ 3
$m = 11$

P1 any correct process to start to solve the equation

A1 cao

$m =$ 11

(2)

(Total for Question 16 is 6 marks)

17 There are some chocolates in a box.

$\frac{1}{4}$ of the chocolates contain nuts.

The rest of the chocolates do not contain nuts.

Write down the ratio of the number of chocolates that contain nuts to the number of chocolates that do not contain nuts.
Give your answer in the form 1 : n

nuts : not nuts

$\frac{1}{4}$: $\frac{3}{4}$ M1 oe (any correct ratio)

×4 ↓ ↓ ×4

1 : 3

A1 cao

1 : 3

(Total for Question 17 is 2 marks)

18 A = {multiples of 5 between 14 and 26} = {15, 20, 25}

B = {odd numbers between 14 and 26} = {15, 17, 19, 21, 23, 25}

(a) List the members of $A \cup B$

B1 any 5 correct membes
B1 all correct
condone use of { }

15, 17, 19, 20, 21, 23, 25

(2)

(b) Describe the members of $A \cap B$

C1

between 14 and 26
odd numbers, which are also multiples of 5

(1)

(Total for Question 18 is 3 marks)

M1 use of common denominator

19 (a) Work out $2\frac{1}{7}+1\frac{1}{4}$

method 1

$2 + 1 = 3$

$\frac{1}{7}\overset{\times 4}{}+\frac{1}{4}\overset{\times 7}{}$

$\frac{1}{7\times 4}+\frac{1}{4\times 7}$

$=\boxed{\frac{4}{28}+\frac{7}{28}}$

$=\frac{11}{28}$

Answer $3\frac{11}{28}$

method 2

$2\frac{1}{7}=\frac{2\times 7+1}{7}=\frac{15}{7}$

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

$\frac{15}{7}\overset{\times 4}{}+\frac{5}{4}\overset{\times 7}{}$

$\frac{15}{7\times 4}+\frac{5}{4\times 7}$

$=\boxed{\frac{60}{28}+\frac{35}{28}}$

$=\frac{95}{28}$

$=3\frac{11}{28}$

28 × 2 = 56, 1

28 × 3 = 84, 2

$3\frac{11}{28}$ (2) A1 oe

(b) Work out $1\frac{1}{5}\div\frac{3}{4}$

Give your answer as a mixed number in its simplest form.

$1\frac{1}{5}=\frac{1\times 5+1}{5}=\frac{6}{5}$

$\frac{6}{5}\div\frac{3}{4}$

$=\boxed{\frac{6}{5}\times\frac{4}{3}}$ M1

$=\frac{24}{15}$

$=1\frac{9}{15}\overset{\div 3}{}$

$=1\frac{3}{5}$

A1 cao

$1\frac{3}{5}$ (2)

(Total for Question 19 is 4 marks)

20 In a village

the number of houses and the number of flats are in the ratio 7 : 4
the number of flats and the number of bungalows are in the ratio 8 : 5

There are 50 bungalows in the village.

How many houses are there in the village?

Houses : Flats Flats : Bungalows

7 : 4 8 : 5

×2 ↓ ↓ ×2

14 : 8 M1

method to make flats the same

So now we can write

Houses : Flats : Bungalows

14 : 8 : 5 M1

×10 ×10 ×10

140 : 80 : 50

A1 cao

140

(Total for Question 20 is 3 marks)

21 Renee buys 5 kg of sweets to sell.
She pays £10 for the sweets.

Renee puts all the sweets into bags.
She puts 250 g of sweets into each bag.
She sells each bag of sweets for 65p.

Renee sells all the bags of sweets.

Work out her percentage profit.

5 kg : £10

4 × 250g bags = 1000g or 1kg B1

To make 5kg Renee will have 20 bags

"20" × 65p M1

= 2 × 10 × 65p

= 2 × 650p

= 1300p

= £13 A1

650
650
1300
1

Cost £10 Sells £13 profit £3

$\%\ \text{profit} = \frac{£3}{£10} \times 100\ \%$

$= \frac{3}{10} \times 100$

$= 0.3 \times 100$

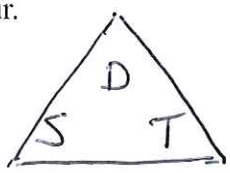
$= 30\ \%$ A1 cao

.....%

(Total for Question 21 is 4 marks)

22 A cycle race across America is 3069.25 miles in length.

Juan knows his average speed for his previous races is 15.12 miles per hour.
For the next race across America he will cycle for 8 hours per day.



(a) Estimate how many days Juan will take to complete the race.

D = 3069.25 miles
S = 15.12 miles per hour
T = ? (then ÷ 8 to find number of days)

Estimated numbers to 1 s f
D = 3000 miles M1
S = 20 miles per hour M1
$T = \frac{D}{S} = \frac{3000}{20} = 150$ hours
$\approx$ 160 hours
$\frac{160}{8} = 20$ days

$8\overline{)15^{7}0.60^{4}0}$ 18.75

D = 3000 miles
S = 15 miles per hour
$T = \frac{3000}{15} = 200$ hours
$\frac{200}{8} = 25$ days * best answer

19 days

A1 any sensible answer

(3)

Juan trains for the race.
The average speed he can cycle at increases.
It is now 16.27 miles per hour.

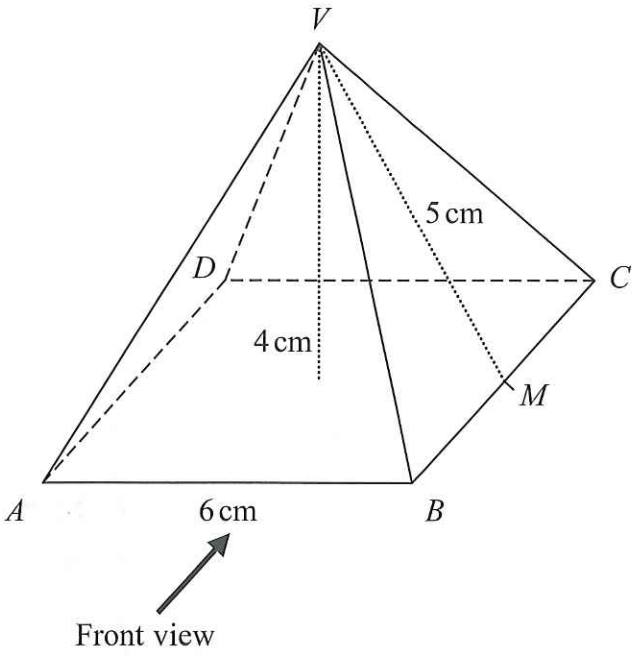
(b) How does this affect your answer to part (a)?

C1 for answer which reflects estimate in (a)
eg: for 25 days, it would take less days

(1)

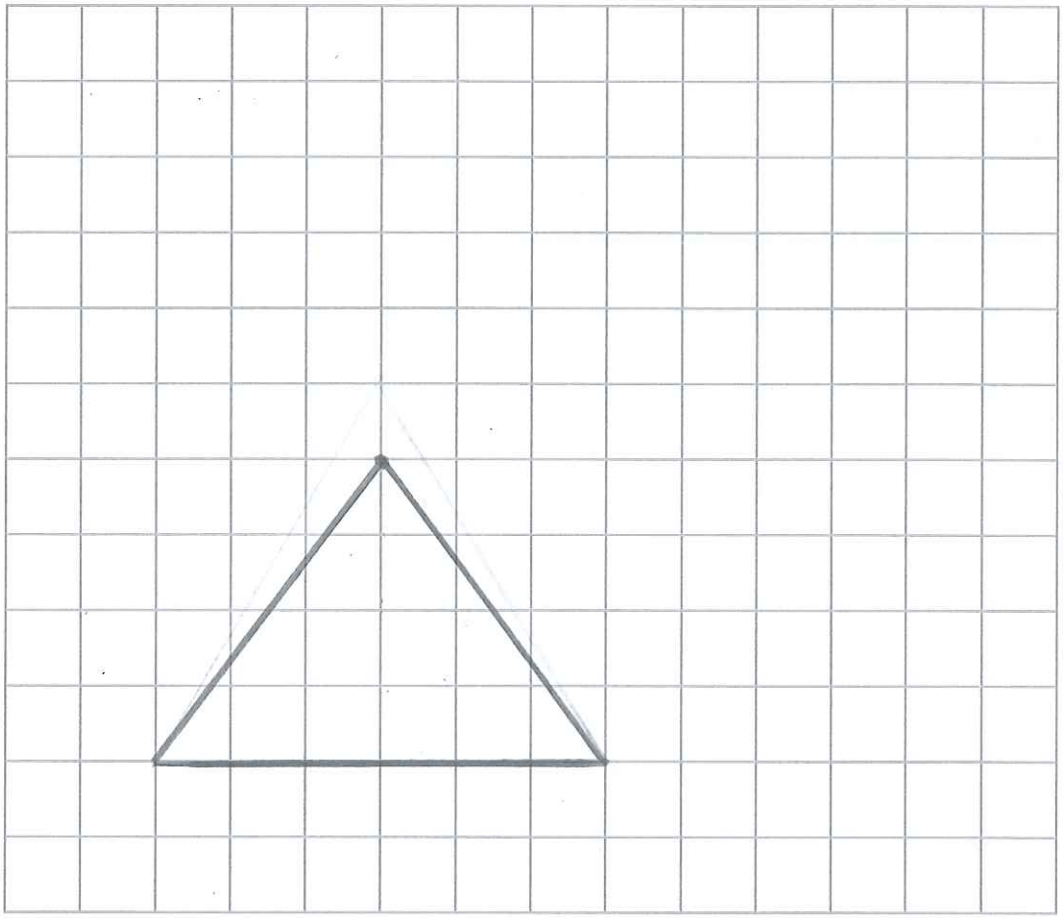
(Total for Question 22 is 4 marks)

23 Here is a solid square-based pyramid, *VABCD*.



The base of the pyramid is a square of side 6 cm.
The height of the pyramid is 4 cm.
M is the midpoint of *BC* and *VM* = 5 cm.

(a) Draw an accurate front elevation of the pyramid from the direction of the arrow.



B1 shape
B1 size

(2)

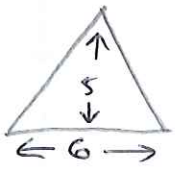
(b) Work out the total surface area of the pyramid.

Area base square $= 6 \times 6 = 36\text{cm}^2$ B1

Area 4 triangle faces $= 4 \times \left(\frac{6 \times 5}{2}\right)$

M1 method to find area of one triangle face

$= 4 \times \left(\frac{30}{2}\right)$



$= 4 \times 15$

$= 60\text{cm}^2$ B1

Total surface Area $= 36\text{cm}^2 + 60\text{cm}^2$

$= 96\text{cm}^2$ A1 cao

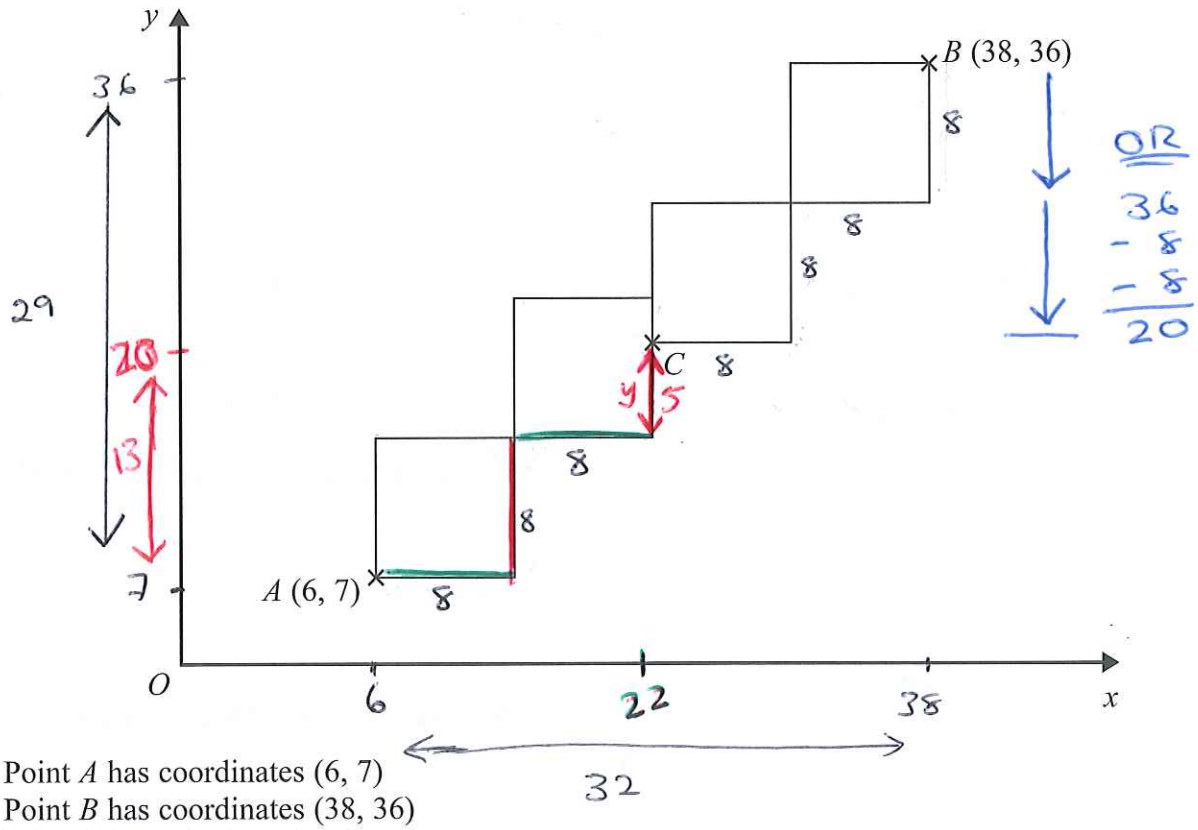
.....

(4)

(Total for Question 23 is 6 marks)

24 A pattern is made from four identical squares.

The sides of the squares are parallel to the axes.



Point A has coordinates (6, 7)
Point B has coordinates (38, 36)
Point C is marked on the diagram.

Work out the coordinates of C.

$32 \div 4 = 8$

M1 method to find length of one side

so the length of one side on each square is 8

x-coordinate of C = $6 + 8 + 8 = 22$ M1 method to find x coordinate

to find the y coordinate we must work out the length y

$8 + 8 + 8 = 24$

M1 method to find y coordinate

so y must be 5 to make the total jump from 7 to 36 equal 29.

∴ the y coordinate of C = $8 + 5 + 7 = 20$

any suitable methods acceptable

A1 cao A1 cao

(22, 20)

(Total for Question 24 is 5 marks)

25 On the grid below, draw the graph of $y = 1 - 4x$ for values of x from -3 to 3

x	-3	-2	-1	0	1	2	3
y	13	9	5	1	-3	-7	-11

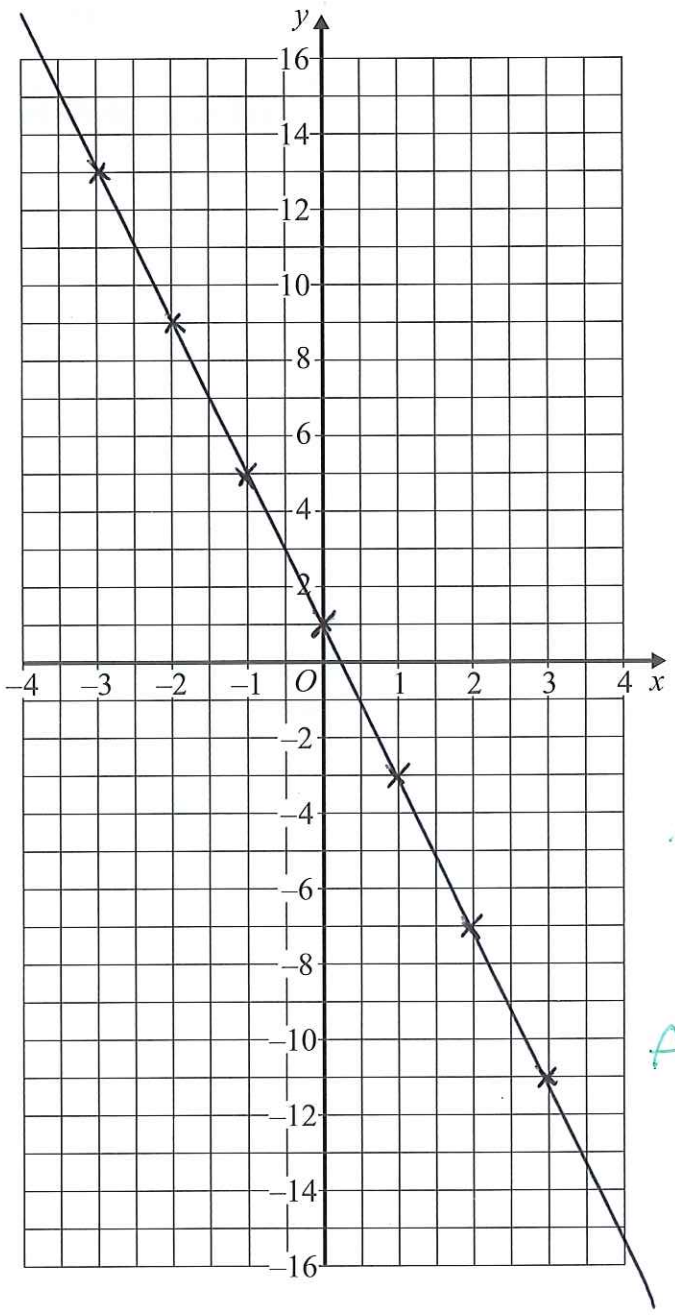
M1 method to find points

or think $y = mx + c$

$y = -4x + 1$

y intercept 1

gradient $-\frac{4}{1}$ RISE (down 4) RUN (forward 1)



B1 at least 2 points plotted correctly

A1 fully correct line

(Total for Question 25 is 3 marks)

26 $\mathbf{a} = \begin{pmatrix} 5 \\ 2 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -1 \\ 7 \end{pmatrix}$

Work out $2\mathbf{a} + \mathbf{b}$ as a column vector.

$2\begin{pmatrix} 5 \\ 2 \end{pmatrix} + \begin{pmatrix} -1 \\ 7 \end{pmatrix}$

$= \begin{pmatrix} 10 \\ 4 \end{pmatrix} + \begin{pmatrix} -1 \\ 7 \end{pmatrix}$ M1

$= \begin{pmatrix} 10-1 \\ 4+7 \end{pmatrix}$

A1 $\begin{pmatrix} 9 \\ 11 \end{pmatrix}$

(Total for Question 26 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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