

Write your name here

Surname

Mr Thompson

Other names

Pearson

Edexcel GCSE

Centre Number

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Candidate Number

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Mathematics A Solutions

Paper 2 (Calculator)

Foundation Tier

Friday 13 June 2014 – Morning

Time: 1 hour 45 minutes

Paper Reference

1MA0/2F

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

Total Marks

100

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.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.



Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

Advice

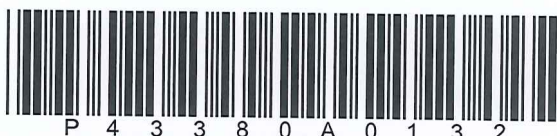
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

P43380A

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5/5/6/c2/



P 4 3 3 8 0 A 0 1 3 2

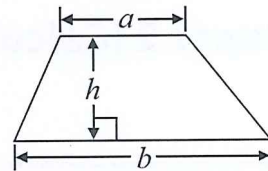
PEARSON

GCSE Mathematics 1MA0

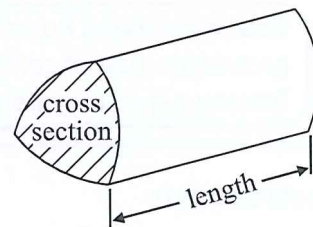
Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Area of trapezium $= \frac{1}{2} (a + b)h$



Volume of prism $= \text{area of cross section} \times \text{length}$



Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 The table shows some information about 5 students.

Name	Gender	Age	Favourite subject
Ella	Female	16	Science
Liam	Male	15	French
Neil	Male	12	History
Penny	Female	15	Maths
Rashida	Female	14	English

(a) Write down Liam's favourite subject.

French
(1)

(b) Write down the name of the oldest student.

Ella
(1)

(c) Write down the name of the female student who is 15 years old.

Penny
(1)

(Total for Question 1 is 3 marks)



P 4 3 3 8 0 A 0 3 3 2

- 2 (a) In the space below, draw a straight line 10 cm long.



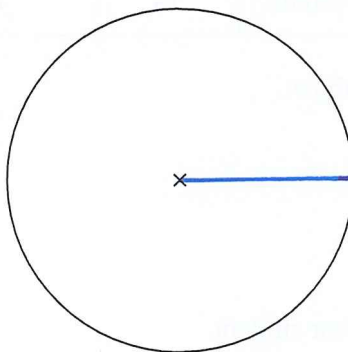
(1)

- (b) Mark with a cross (\times), the midpoint of the line below.



(1)

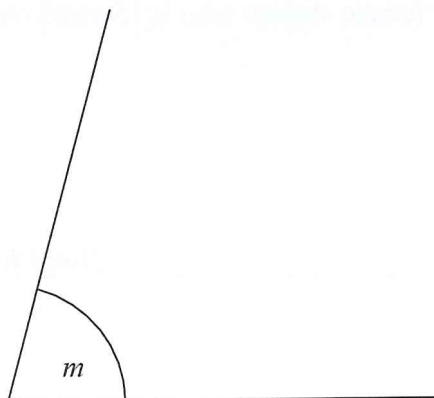
Here is a diagram of a circle, with centre marked \times .



- (c) On the diagram, draw a radius of the circle.

(1)

- (d) Measure the size of angle m .



75

(1)

(Total for Question 2 is 4 marks)



- 3 Edwin goes to a restaurant with some friends.

Here are the meals they have

$$\begin{array}{r}
 2 \text{ fish and chips at } \pounds 9.25 \text{ each} = 18.50 \\
 1 \text{ chicken and chips at } \pounds 9.50 \quad 9.50 \\
 1 \text{ roast lamb at } \pounds 10.55 \quad 10.55 \\
 4 \text{ puddings at } \pounds 4.55 \text{ each.} \quad 18.20 \\
 \hline
 56.75
 \end{array}$$

Edwin pays for the meals with three £20 notes.

How much change should Edwin get?

£60

$$\begin{array}{r}
 60.00 \\
 - 56.75 \\
 \hline
 3.25
 \end{array}$$

£ 3.25

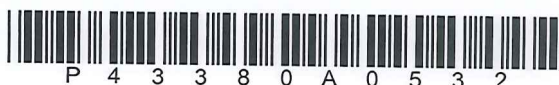
(Total for Question 3 is 3 marks)

- 4 Work out the number that is halfway between 2.9 and 3.6

$$\begin{array}{r}
 3.6 \\
 + 2.9 \\
 \hline
 6.5
 \end{array}$$

$$6.5 \div 2 = 3.25$$

(Total for Question 4 is 1 mark)



P 4 3 3 8 0 A 0 5 3 2

5 28569 people watch a football match.

(a) Write 28569 to the nearest hundred.

28 600

(1)

(b) Write down the value of the 2 in the number 28569

20,000

(1)

5619 of the 28569 people are female.

(c) Work out the number of males.

$$\begin{array}{r} 28569 \\ - 5619 \\ \hline 22950 \end{array}$$

22950

(1)

(Total for Question 5 is 3 marks)

6 The table shows the names of five of Janette's friends.

Boys	Girls
Dodi	Anna
James	Michelle
William	

Janette is going to play a team game.

She chooses one of the boys and one of the girls to be in her team.

Write down all the possible combinations Janette can choose.

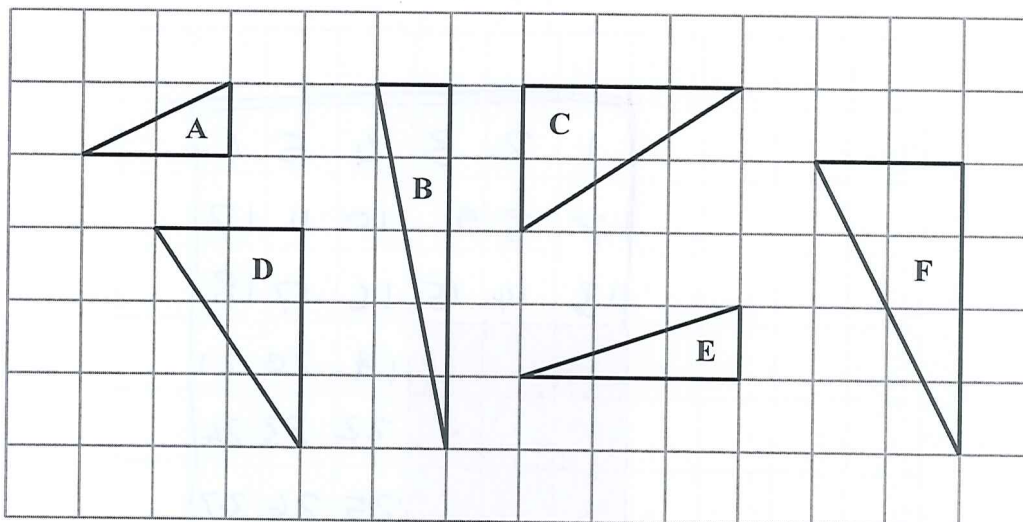
(D, A) (J, A) (W, A)

~~(D, M)~~ (D, M) (J, M) (W, M)

(Total for Question 6 is 2 marks)



7 Here are some triangles drawn on a grid.



Two of the triangles are congruent.

(a) Write down the letters of these two triangles.

C and D

(1)

One of the triangles is an enlargement of triangle A.

(b) (i) Write down the letter of this triangle.

F

(ii) Write down the scale factor of the enlargement.

2

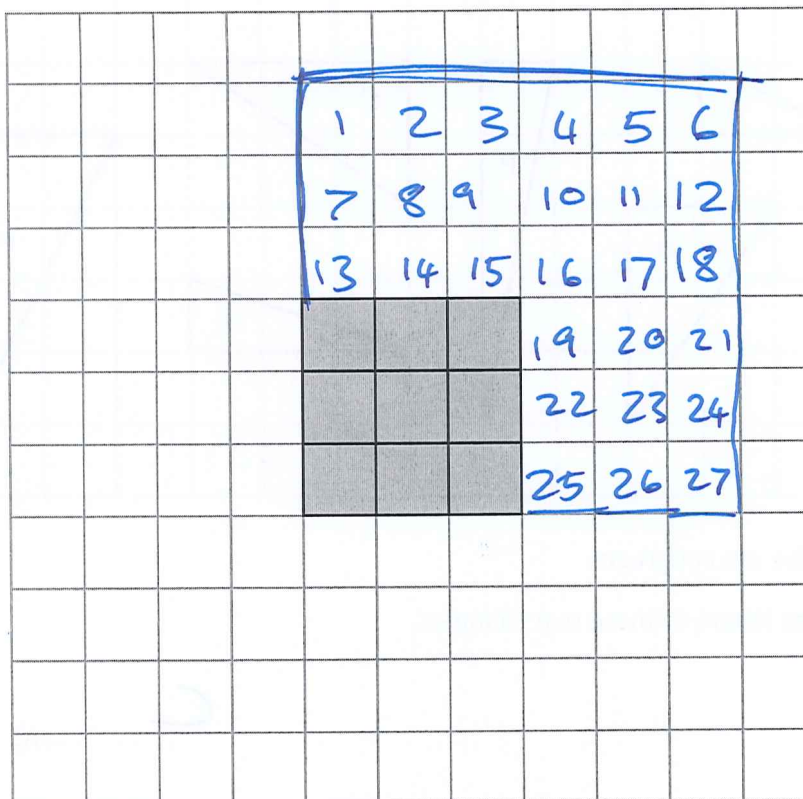
(2)

(Total for Question 7 is 3 marks)



P 4 3 3 8 0 A 0 7 3 2

- 8 A square of side 3 cm is made from nine squares of side 1 cm.



- (a) How many **more** squares of side 1 cm are needed to make a square of side 6 cm?

27

(2)



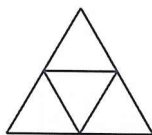
Here is a tile.



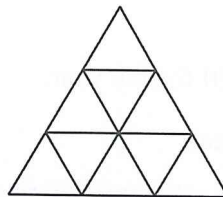
Here is a sequence of patterns made from these tiles.



Pattern number 1



Pattern number 2



Pattern number 3

(b) How many of these tiles are needed to make Pattern number 7?

$$1^2 = 1$$

$$2^2 = 4$$

$$3^2 = 9$$

$$7^2 = 49$$

49

(2)

(Total for Question 8 is 4 marks)



P 4 3 3 8 0 A 0 9 3 2

- 9 Sarah wants a music magazine each month for a year.

She can

pay £3.50 each month

or

pay £37.20 for the year.

Sarah pays £37.20 for the year.

How much cheaper is this than paying £3.50 each month?

$$12 \times 3.50 = 42$$

$$42 - 37.20 = 4.80$$

£ 4.80

(Total for Question 9 is 3 marks)

- 10 Here is a list of numbers.

12 ✓ 19 12 ✓ 15 ✓ 11 ✓ 15 ✓ 12 ✓ 13 ✓ 17

Find the median.

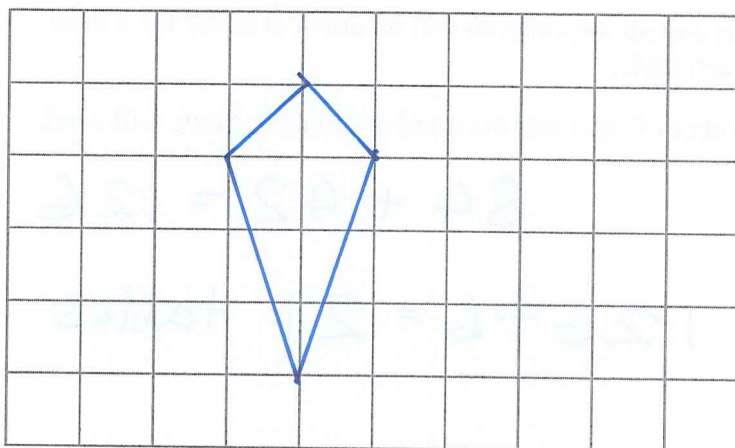
~~11~~ ~~12~~ ~~12~~ ~~12~~ 13 ~~15~~ ~~15~~ ~~17~~ ~~19~~

13

(Total for Question 10 is 2 marks)

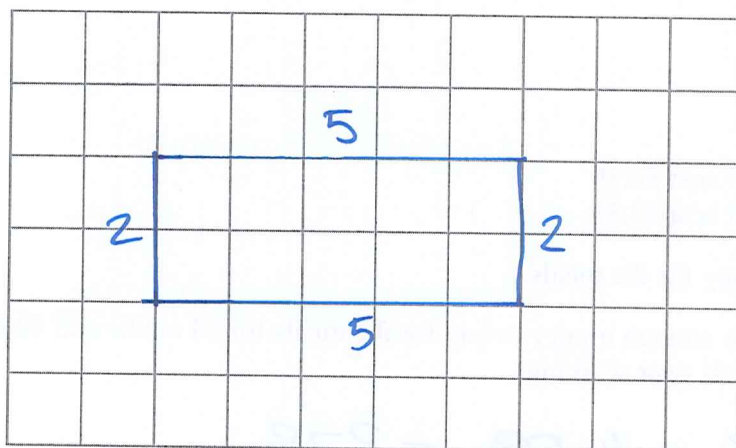


11 (a) On the grid, draw a kite.



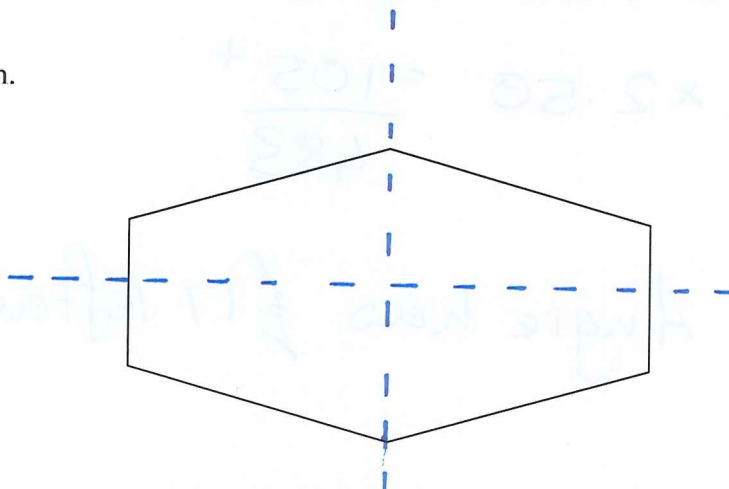
(1)

(b) On this grid, draw a rectangle with a perimeter of 14 cm.



(2)

Here is a hexagon.



(c) Draw all the lines of symmetry on this hexagon.

(2)

(Total for Question 11 is 5 marks)



12 Angie is organising a party for 84 adults and 42 children.

At 8 pm all the adults and all the children will sit down at tables for a meal.
6 people will sit at each table.

(a) Work out the number of seats and the number of tables Angie will need.

$$84 + 42 = 126$$

$$126 \div 6 = 21 \text{ tables}$$

$$\begin{array}{r} 126 \text{ seats} \\ 21 \text{ tables} \\ (3) \end{array}$$

Each adult meal will cost £4.50

Each child meal will cost £2.50

Angie has £500 to pay for the meals.

(b) Does Angie have enough money to pay for the meals for 84 adults and 42 children?
You must show all your working.

$$84 \times 4.50 = 378$$

$$\begin{array}{r} 42 \times 2.50 = 105 + \\ \hline 483 \end{array}$$

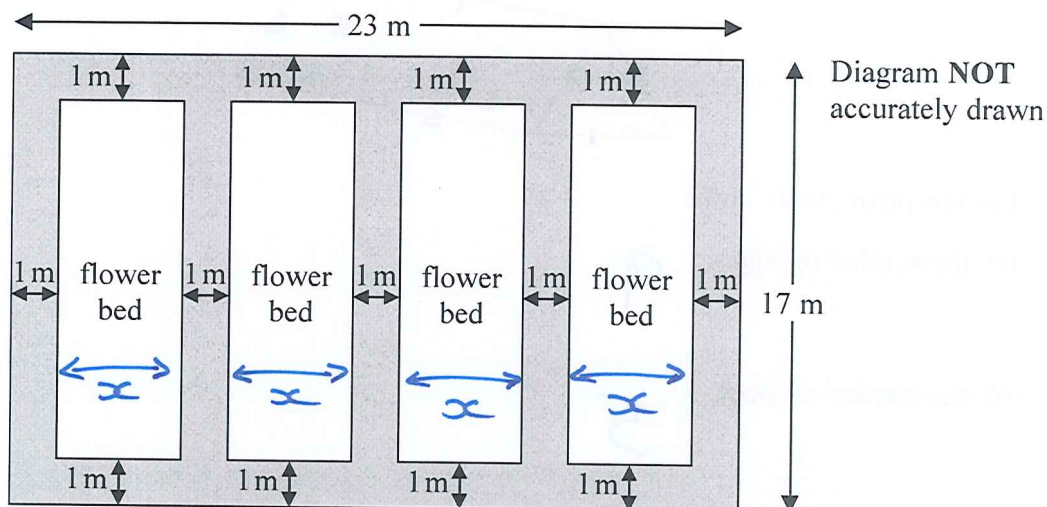
Yes Angie has £17 leftover

(3)

(Total for Question 12 is 6 marks)



- 13 The diagram shows a garden with 4 flower beds.
The garden is a rectangle, 23 m by 17 m.



Each flower bed is a rectangle with the same length and the same width.

Work out the length and the width of a flower bed.

$$\begin{array}{rcl}
 4x + 5 & = & 23 \\
 -5 & & -5 \\
 \hline
 4x & = & 18 \\
 \div 4 & & \div 4 \\
 \hline
 \text{Width} \rightarrow x & = & 4.5
 \end{array}$$

$$\begin{array}{rcl}
 \text{Length } 1 + 1 + y & = & 17 \\
 2 + y & = & 17 \\
 -2 & & -2 \\
 \hline
 y & = & 15
 \end{array}$$

length = 15 m

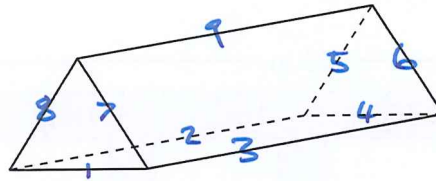
width = 4.5 m

(Total for Question 13 is 3 marks)



P 4 3 3 8 0 A 0 1 3 3 2

14 Here is a triangular prism.



(a) For this prism, write down

(i) the number of edges

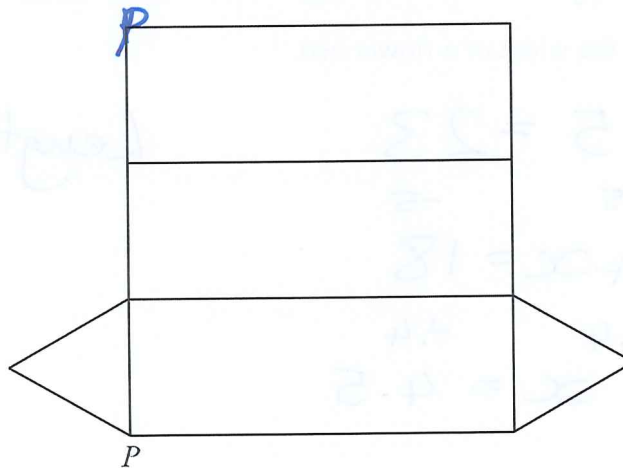
9

(ii) the number of faces

5

(2)

Here is a net of the triangular prism.



The net is folded to make the prism.
One other point meets at *P*.

(b) Mark this point on the net with the letter *P*.

(1)

(Total for Question 14 is 3 marks)



15 Here is a list of numbers.

2 3 4 12 13 14 15 22 24

(a) From this list, write down

(i) a factor of 6

2 or 3

(ii) a multiple of 6

12 or 24

(2)

Demelza says,

“All prime numbers are odd numbers”.

(b) Demelza is wrong.

Explain why.

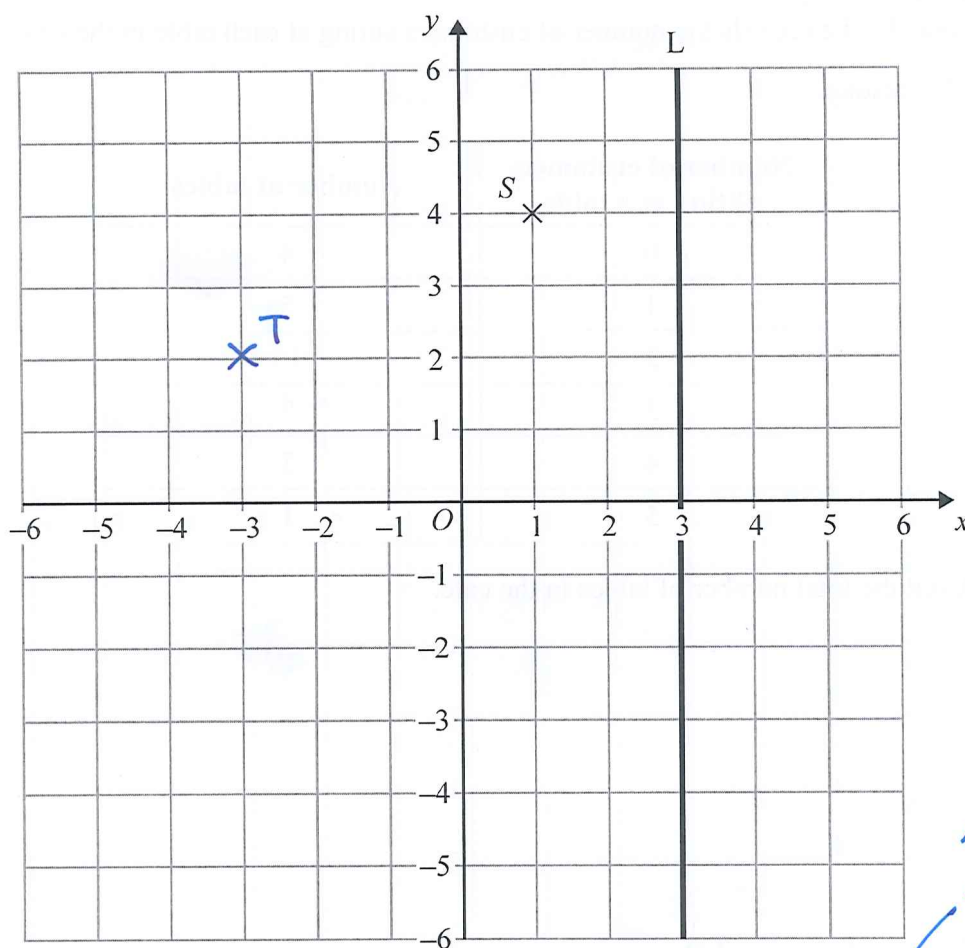
2 is a prime number that is even.

(1)

(Total for Question 15 is 3 marks)



P 4 3 3 8 0 A 0 1 5 3 2



- (a) Write down the coordinates of the point S.

(1, 4)
(1)

The coordinates of the point T are (-3, 2).

- (b) On the grid, mark this point with a cross (×).
Label the point T.

(1)

- (c) Write down an equation of the line L.

$x = 3$
(1)

(Total for Question 16 is 3 marks)



17 Chris works in a cafe.

At noon one day he records the number of customers sitting at each table in the cafe.

Here are his results.

Number of customers sitting at a table	Number of tables	fx
0	4	0
1	5	5
2	10	20
3	7	21
4	3	12
5	1	5
	<u>30</u>	<u>63</u>

(a) Work out the total number of tables in the cafe.

30
(1)

(b) Work out the total number of customers sitting at tables in the cafe.

63
(2)

(c) Work out the mean number of customers sitting at a table.

number of customers \div number of tables
 $63 \div 30 = 2.1$

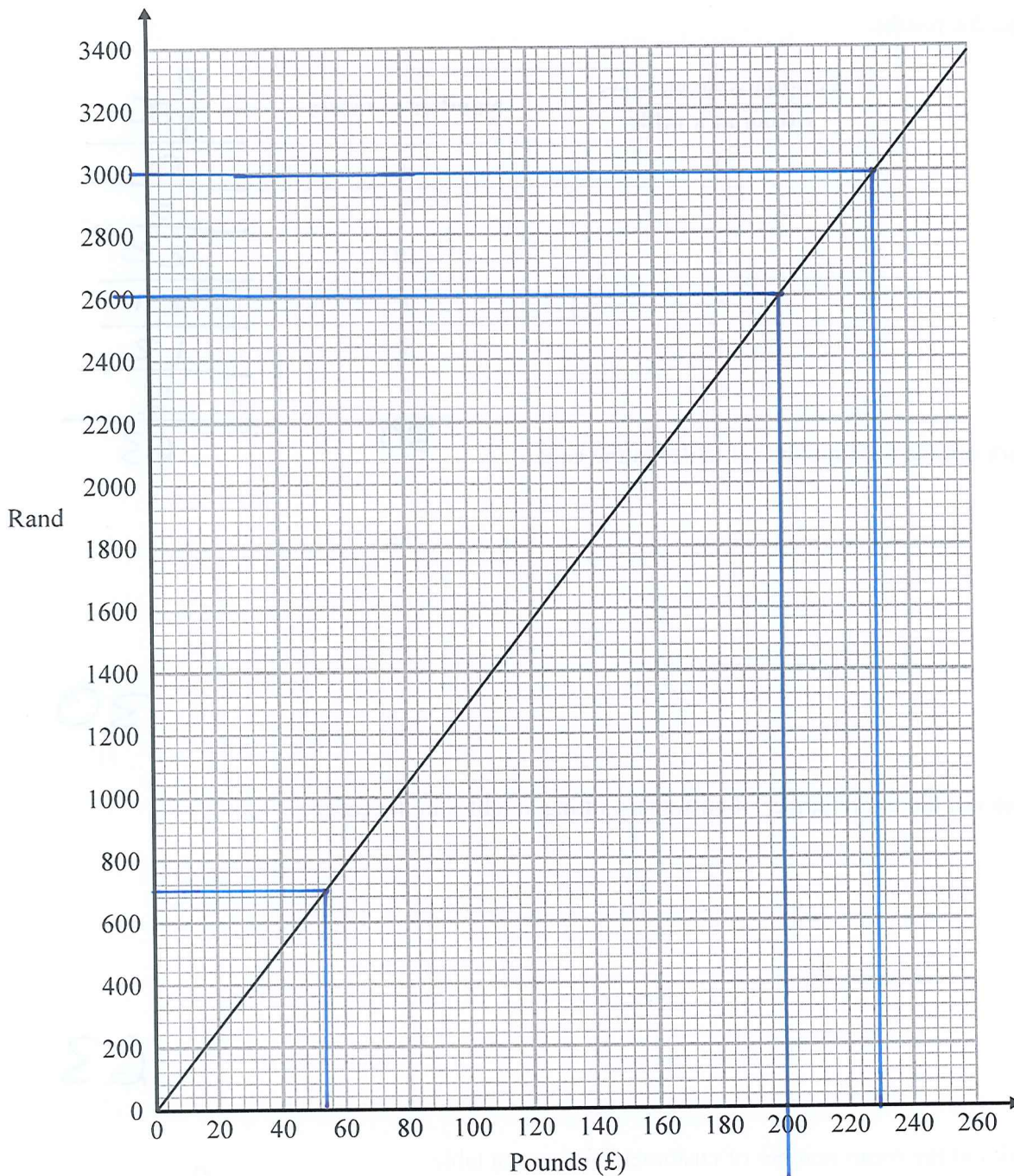
2.1
(2)

(Total for Question 17 is 5 marks)



P 4 3 3 8 0 A 0 1 7 3 2

18 Here is a conversion graph to change between UK pounds (£) and South African rand.



Jo changes £200 into rand.

(a) How many rand does she get?

2600 rand
(1)



Simon has £100 and 3700 rand.

He goes to a shop where he can spend both pounds and rand.

He wants to buy

a computer costing £360

or

a watch costing £400

or

a camera costing £375

- *(b) Which of these items can Simon afford to buy?
You must show clearly how you get your answer.

Simon can
afford to buy the
computer or camera but not
the watch.

$$\begin{array}{r} 3700 \text{ rand} \\ 3000 \text{ rand} = \cancel{230} \\ 700 \text{ rand} = \cancel{55} \\ \hline \pounds 285 \\ + \pounds 100 \\ \hline \pounds 385 \end{array}$$

(3)

(Total for Question 18 is 4 marks)



P 4 3 3 8 0 A 0 1 9 3 2

19 Martin wants to find out the type of transport people use to get to work.

Design a suitable table for a data collection sheet he could use.

Transport type	Tally	Frequency
Car		
Walk		
Bicycle		
Horse		
Jetpack		

(Total for Question 19 is 3 marks)



20 A factory makes 1500 cans per minute.

The factory makes cans for 8 hours each day.

Each can is filled with 330 ml of cola.

How much cola is needed to fill all the cans that are made each day?

Give your answer in litres.

① 1500 cans per min
 (x60)

② 90,000 per hour

③ 720,000 per day
 (x8)
 x ~~330~~ 330

④ 237,600,000 ml
 ÷ 1000

⑤ 237,600 L

237,600 litres

(Total for Question 20 is 4 marks)



P 4 3 3 8 0 A 0 2 1 3 2

*21 Here are two fractions.

$$\frac{2}{3}$$

$$\frac{7}{8}$$

Common denominator
is 24

Which of these fractions has a value closer to $\frac{3}{4}$?

You must show clearly how you get your answer.

$$\frac{2}{3} \xrightarrow{\times 8} \frac{16}{24} \quad 2 \text{ away}$$

$$\frac{7}{8} \xrightarrow{\times 3} \frac{21}{24} \quad 3 \text{ away}$$

$$\frac{3}{4} \xrightarrow{\times 6} \frac{18}{24}$$

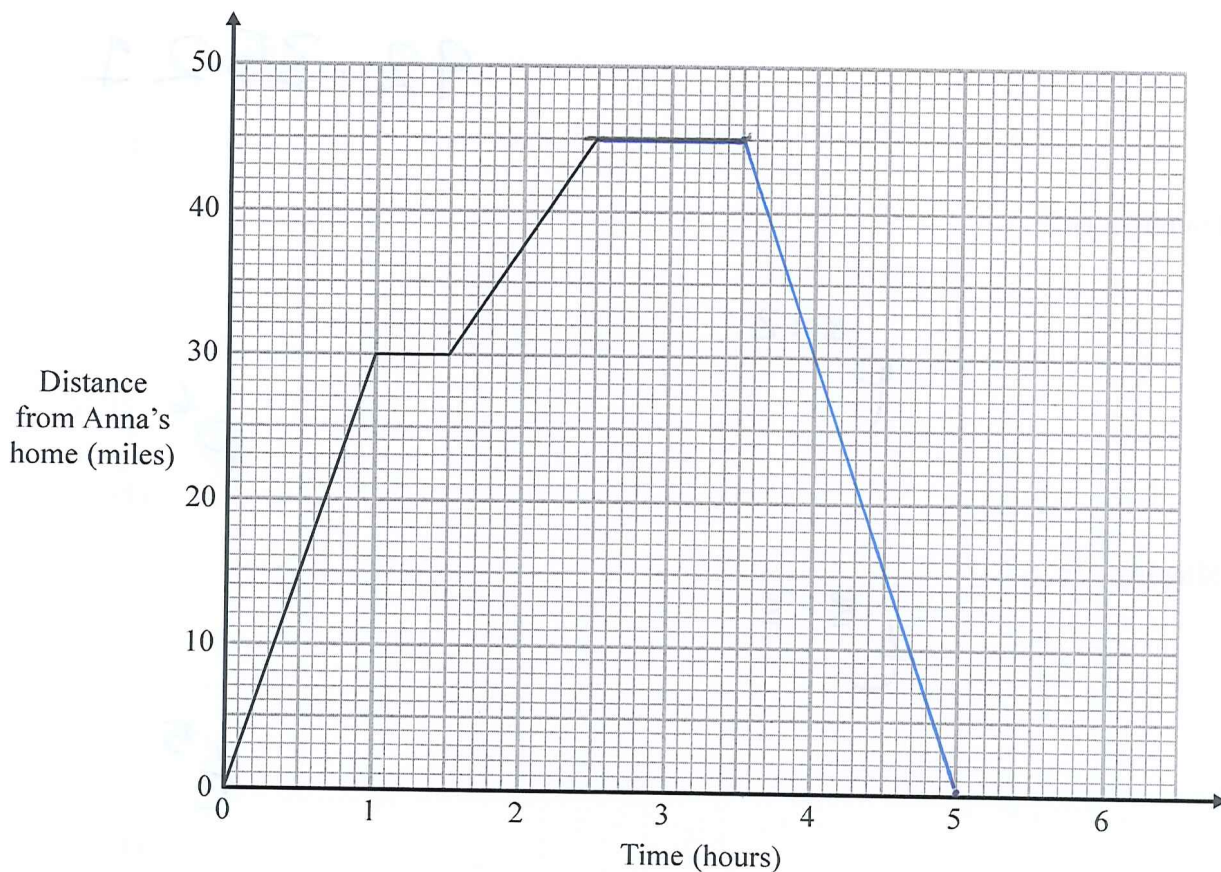
$\frac{2}{3}$ is closer to
 $\frac{3}{4}$

(Total for Question 21 is 3 marks)



22 Anna drives 45 miles from her home to a meeting.

Here is the travel graph for Anna's journey to the meeting.



Anna's meeting lasts for 1 hour.

She then drives home at a steady speed of 30 miles per hour with no stops.

Complete the travel graph to show this information.

45 mi 30 mi/hour
↓
hour and a half

(Total for Question 22 is 2 marks)



P 4 3 3 8 0 A 0 2 3 3 2

23 (a) Work out the value of 3.1^4

92.3521

(1)

(b) Simplify $(p^3)^2$

$p^{3 \times 2}$

p^6

(1)

(c) Simplify $\frac{t^8}{t^3}$

t^{8-3}

t^5

(1)

$$2^3 \times 2^n = 2^9$$

(d) Work out the value of n .

$$2^{3+n} = 2^9$$

$$n = 6$$

6

(1)

(Total for Question 23 is 4 marks)



*24 Miss Phillips needs to decide when to have the school sports day.

The table shows the number of students who will be at the sports day on each of 4 days. It also shows the number of teachers who can help on each of the 4 days.

	Tuesday	Wednesday	Thursday	Friday
Number of students	179	162	170	143
Number of teachers	15	13	14	12

For every 12 students at the sports day there must be at least 1 teacher to help.

On which of these days will there be enough teachers to help at the sports day?
You must show all your working.

$$\begin{aligned}15 \times 12 &= 180 \\13 \times 12 &= 156 \\14 \times 12 &= 168 \\12 \times 12 &= 144\end{aligned}$$

Tuesday and Friday will have enough teachers.

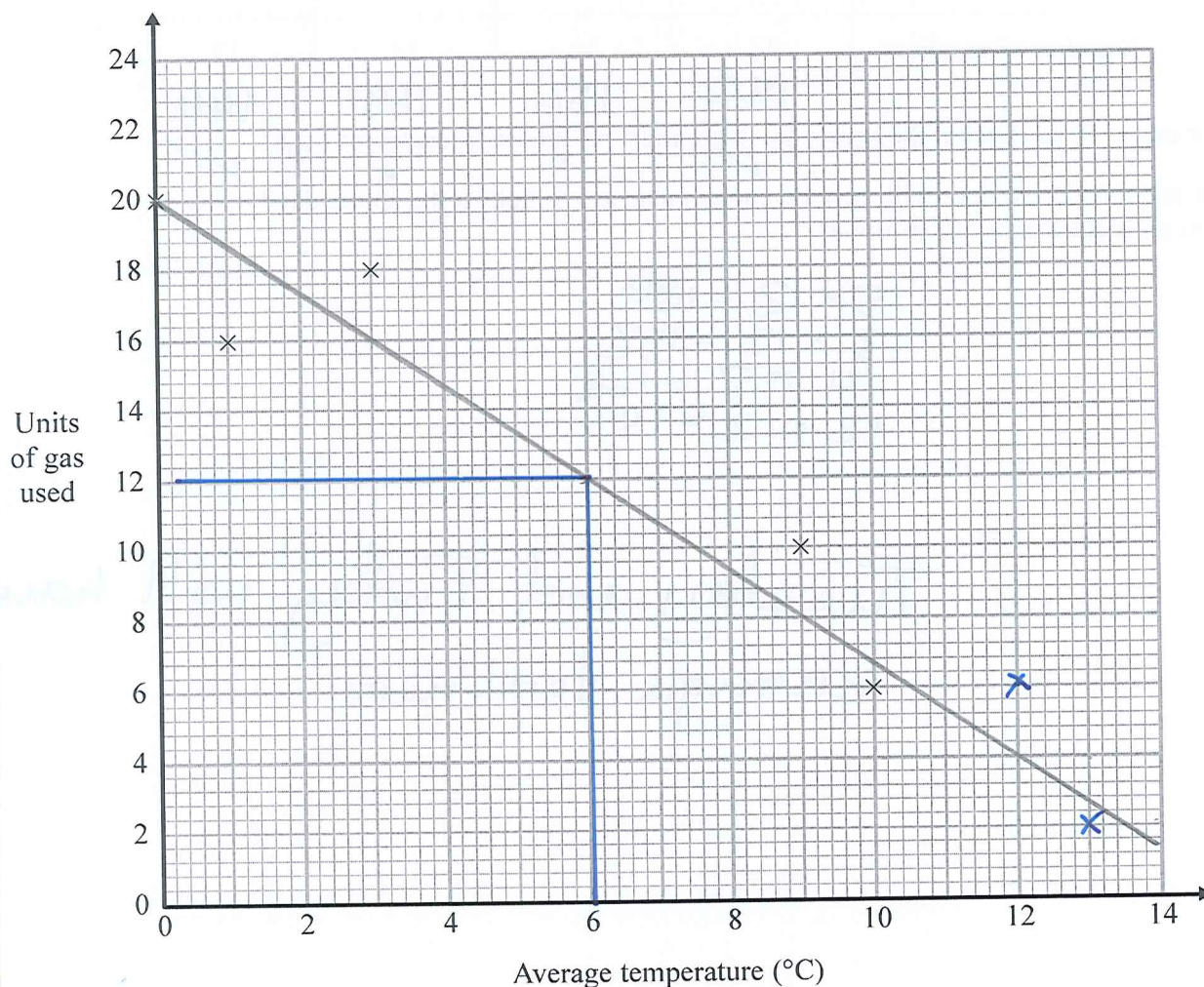
(Total for Question 24 is 3 marks)



P 4 3 3 8 0 A 0 2 5 3 2

- 25 The table shows the average temperature on each of seven days and the number of units of gas used to heat a house on these days.

Average temperature ($^{\circ}\text{C}$)	0	1	3	9	10	12	13
Units of gas used	20	16	18	10	6	6	2



- (a) Complete the scatter graph to show the information in the table.
The first 5 points have been plotted for you.

(1)

- (b) Describe the relationship between the average temperature and the number of units of gas used.

As the temperature goes up the units of gas used goes down.

(1)



(c) Estimate the average temperature on a day when 12 units of gas are used.

↓
Draw on a line of
best fit!

6 °C
(2)

(Total for Question 25 is 4 marks)

26 (a) Solve $3p + 4 = 6$

$$\begin{array}{r} -4 \quad -4 \\ 3p = 2 \\ \div 3 \quad \div 3 \\ p = 2/3 \end{array}$$

$p = 2/3$
(2)

$$-5 < y \leq 0$$

y is an integer.

(b) Write down all the possible values of y .

-4, -3, -2, -1, 0
(2)

(Total for Question 26 is 4 marks)



P 4 3 3 8 0 A 0 2 7 3 2

27 $x = 0.7$

Work out the value of $\frac{(x+1)^2}{2x}$

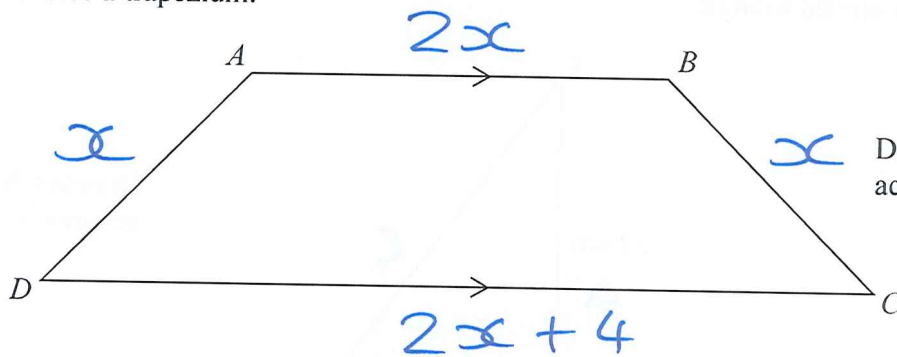
Write down all the figures on your calculator display.

$$\frac{1.7^2}{1.4} = \frac{2.89}{1.4} = 2.064285714$$

(Total for Question 27 is 2 marks)



28 The diagram shows a trapezium.



$AD = x$ cm.

BC is the same length as AD .

AB is twice the length of AD .

DC is 4 cm longer than AB .

The perimeter of the trapezium is 38 cm.

Work out the length of AD .

$$P = 6x + 4$$

$$P = 38$$

$$6x + 4 = 38$$

$$6x = 34$$

$$\div 6 \quad \div 6$$

$$x = 5\frac{2}{3}$$

$$5\frac{2}{3} \text{ cm}$$

(Total for Question 28 is 4 marks)



P 4 3 3 8 0 A 0 2 9 3 2

29 Here is a right-angled triangle.

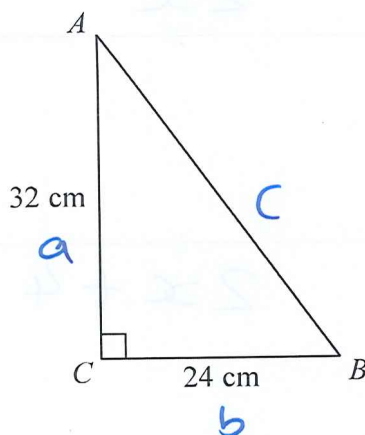


Diagram NOT
accurately drawn

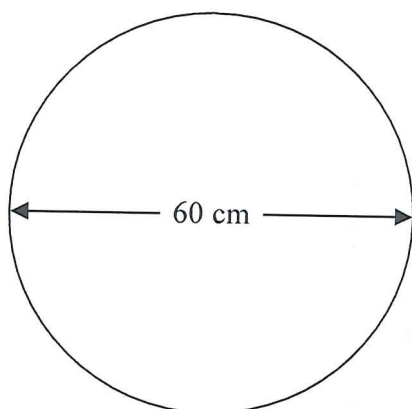
(a) Work out the length of AB .

$$\begin{aligned}a^2 + b^2 &= c^2 \\32^2 + 24^2 &= c^2 \\1024 + 576 &= c^2 \\1600 &= c^2 \\\sqrt{1600} &= c \\40 &= c\end{aligned}$$

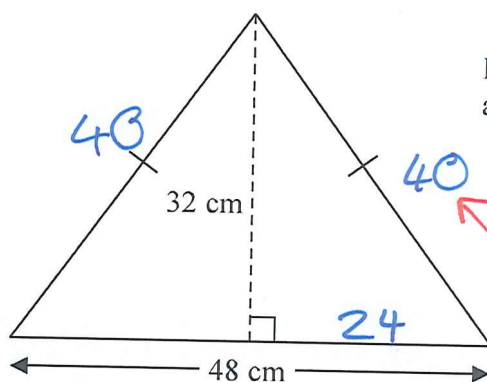
40 cm
(3)



Inderpal is making two mirrors.



Mirror A



Mirror B

Diagram NOT accurately drawn

Mirror A is in the shape of a circle.
This mirror has a diameter of 60 cm.

Mirror B is in the shape of an isosceles triangle.
This mirror has base 48 cm and height 32 cm.

Inderpal buys metal strips to put around the edge of each mirror.
The metal strip is sold in lengths of one metre.
Each one metre length of metal strip costs £5.68

- (b) Work out the total amount Inderpal pays.
You must show all your working.

$$C = \pi d$$

$$C = \pi \times 60$$

$$C = 188.49555921 \dots \text{cm}$$

(A)

$$\text{Perimeter} = 128 \text{ cm}$$

~~2m worth~~

$$\begin{array}{r} 188.49555921 \\ + 128 \\ \hline \end{array}$$

$$316.49555921$$

Need 4m

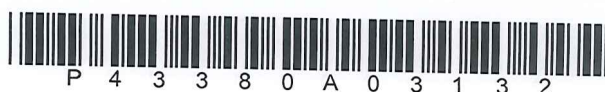
~~2m worth~~

$$4 \times 5.68 = 22.72$$

£ 22.72
(4)

(Total for Question 29 is 7 marks)

TOTAL FOR PAPER IS 100 MARKS



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