Write your name here

Surname		Other names

**Pearson
Edexcel GCSE**

Centre Number   Candidate Number

Mathematics A
Paper 1 (Non-Calculator)

Foundation Tier

Wednesday 2 November 2016 – Morning	Paper Reference
Time: 1 hour 45 minutes	**1MA0/1F**

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

Total Marks

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 must not be used.**

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 ▶

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PEARSON

GCSE Mathematics 1MA0
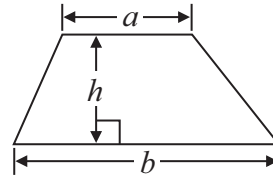
Formulae: Foundation Tier

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

Volume of prism = area of cross section × length
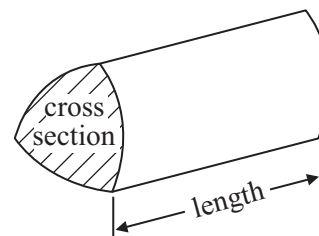
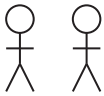*P48193A0228*

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator.

1 Heidi asks all the children in her class to tell her the sport they like best.

The pictogram shows how many children like swimming best, like netball best and like football best.

Key: represents 2 children

8 children like cricket best.

(a) Use this information to complete the pictogram.

(1)

(b) Work out the total number of children in Heidi's class.

....

(2)

(Total for Question 1 is 3 marks)

Turn over ▶

2 (a) Measure the length of the line *AB*.
Give your answer in centimetres.

A ———————————————————— B

.... cm
(1)

An angle is marked in this diagram.
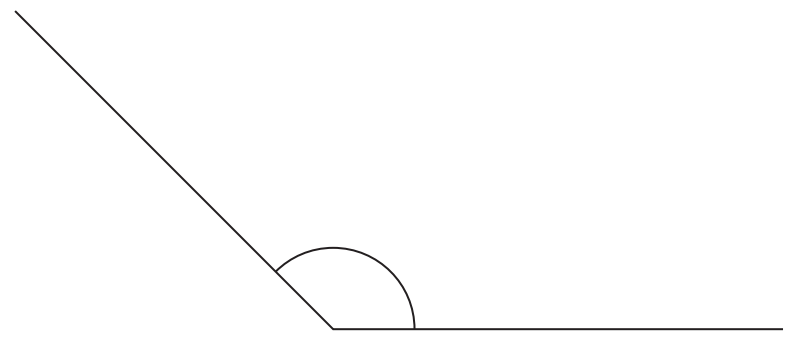
(b) Write down the special name for this type of angle.

....
(1)

(c) Measure the size of the angle.

°
....
(1)

(Total for Question 2 is 3 marks)

3 Complete the table by writing a suitable **metric** unit for each measurement.

The volume of water in a glass	250 ....
The distance from London to Brighton	74 ....
The weight of a bus	12 ....

(Total for Question 3 is 3 marks)

4 Here is a price list in a school shop.

Price list	
pens	30p each
pencils	20p each
rulers	45p each
erasers	10p each

Beth wants to spend exactly 75p in the shop.

(a) How many different ways are there for Beth to spend exactly 75p?
You must show how you got your answer.

....
(2)

Alex buys 7 pens and 3 rulers.
He pays with a £5 note.

(b) How much change should Alex get?

£ ....
(3)

Chris buys y pencils.

(c) Write down an expression, in terms of y, for the total cost of the pencils in pence.

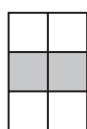.................................. pence
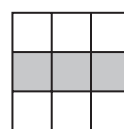**(1)**

(Total for Question 4 is 6 marks)

5 Here is a sequence of patterns made with grey squares and with white squares.

pattern number 1   pattern number 2   pattern number 3

(a) In the space below, draw pattern number 4

A pattern in the sequence has 10 grey squares.

(b) How many white squares does the pattern have?

....

(1)

A pattern in the sequence has a total of 45 squares.

(c) (i) How many grey squares does the pattern have?

....

(ii) Explain how you found your answer.

....

....

(2)

(Total for Question 5 is 4 marks)

6 The time zone clock shows the times in four cities on Monday when it is 0900 in London.

London	New York	Moscow	Tokyo
0900	0400	1200	1700

(a) What is the difference between the time shown in London and the time shown in Tokyo?

.... hours

(1)

(b) What is the time in London when it is 1730 in Moscow?
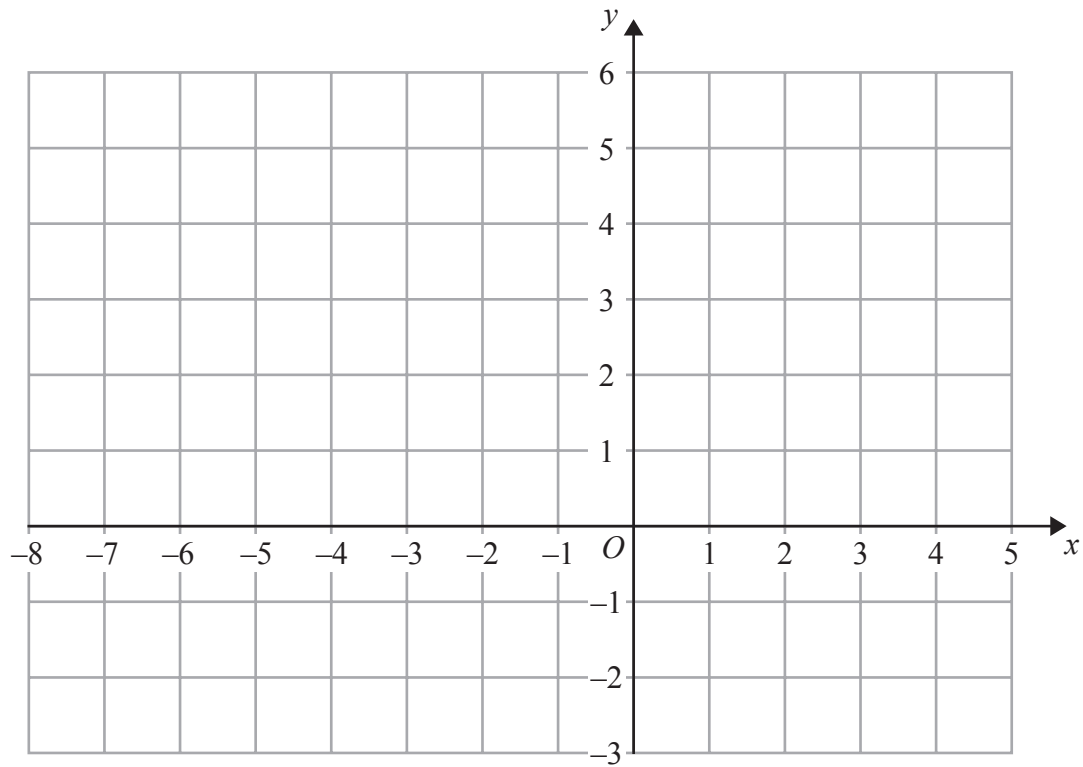
....

(1)

Richard goes by plane from London to New York.
The plane leaves when the time in London is 1400
The plane takes 9 hours to get to New York.

(c) What is the time in New York when the plane gets there?

....

(2)

(Total for Question 6 is 4 marks)

7

The points (–3, –1), (–2, 2) and (3, 2) are three vertices of a parallelogram.

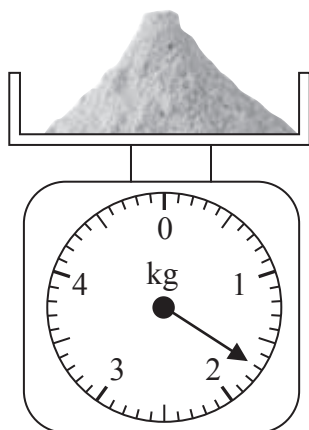Find the coordinates of the fourth vertex of the parallelogram.

(.............. , ...)

(Total for Question 7 is 3 marks)

8 Emma puts some flour on a weighing scale.

Emma needs 2 kg of flour.

(a) How many more grams of flour does she need?

.... grams

(2)

Sanah's suitcase is weighed at an airport.

The weight of her suitcase is shown on the scale.
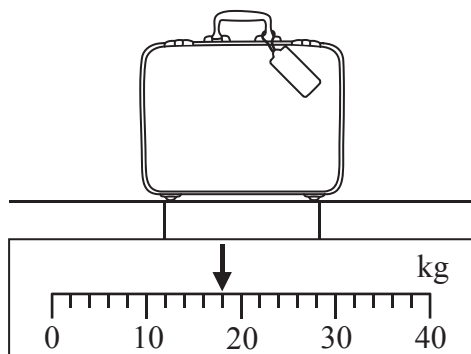
Sanah's suitcase weighs more than 15 kg, so she has to pay an excess baggage charge.
She has to pay £7 for each kg more than 15 kg.

(b) How much does Sanah have to pay?

£ ....

(3)

(Total for Question 8 is 5 marks)

9 Sonia has five number cards.

| 1 | 7 | 3 | 4 | 3 |

Sonia puts all five cards on the table to make a number.

(a) Write down the smallest number Sonia can make with the five cards.

....

(1)

(b) Write down the largest **even** number Sonia can make with the five cards.

....

(2)

Sonia takes at random one of the cards.

(c) Write down the probability that the card will have the number 7 on it.

....

(1)

(d) Write down the probability that the card will **not** have the number 7 on it.

....

(1)

(Total for Question 9 is 5 marks)

*10 Brian is making a fence.

Diagram **NOT**
accurately drawn

10 cm   10 cm   10 cm   10 cm

←space→   ←space→   ←space→

←————————— 4 m —————————→
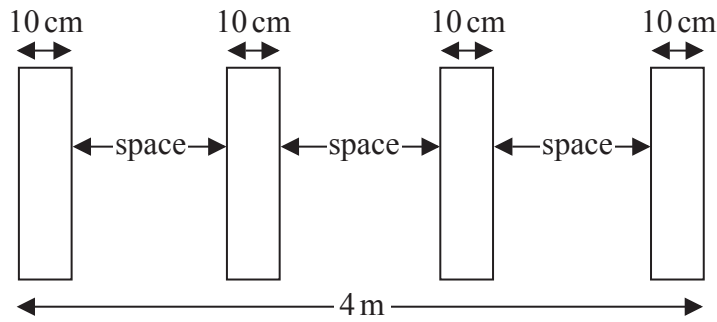
The fence will be 4 m long.

Brian uses four posts.
Each post has a width of 10 cm.

Brian wants to have spaces of equal width between the posts.

Work out the width of each space.
You must show your working.

(Total for Question 10 is 4 marks)

Turn over ▶

11 (a) Simplify $h + h + h$

....

(b) Simplify $p \times r \times 3$

....

(c) Simplify $5x + 4y - 3x + 3y$

....

$k = 5$
$m = 3$

(d) Work out the value of $2k + 4m$

....

(Total for Question 11 is 6 marks)

12 The diagram shows a flag drawn on a grid of squares.
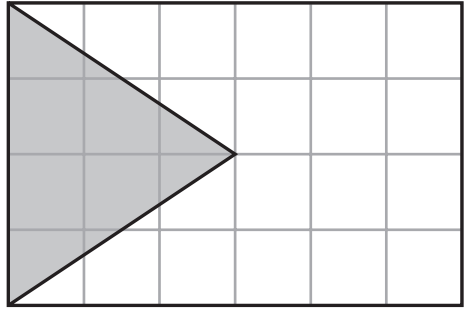
(a) Colin says that $\dfrac{1}{4}$ of the flag is shaded.

Colin is right.
Explain why.

....

....

....

....

(2)

(b) What percentage of the flag is **not** shaded?

.... %

(1)

(Total for Question 12 is 3 marks)

Turn over ▶

13 The table shows information about the number of grams of protein, of carbohydrate and of fat in 100 grams of regular yoghurt and in 100 grams of low fat yoghurt.
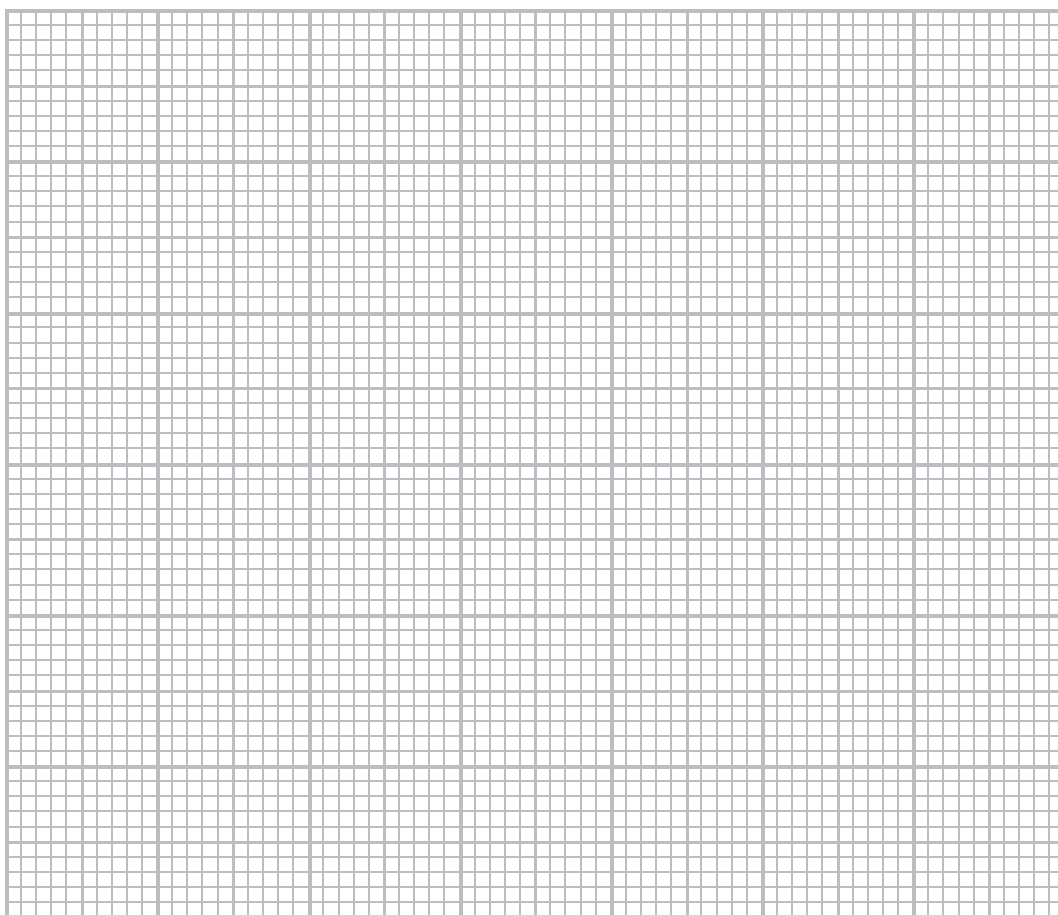
	Protein	Carbohydrate	Fat
Regular	4.7	4.7	3.4
Low Fat	5.9	5.8	0.2

(a) Work out the number of grams of protein in 200 g of regular yoghurt.

.... g

(1)

Jamie is going to compare the information in the table.

*(b) On the grid, draw a suitable diagram or chart he could use.

(4)

(Total for Question 13 is 5 marks)

14 Write these numbers in order of size.
Start with the smallest number.

$$35\% \qquad \frac{3}{10} \qquad 0.32 \qquad \frac{2}{5} \qquad 0.25$$

....

(Total for Question 14 is 2 marks)

15 Ryan is the manager of a shopping centre.
He wants to find out the method of transport people use to get to the shopping centre.

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

(Total for Question 15 is 3 marks)

16
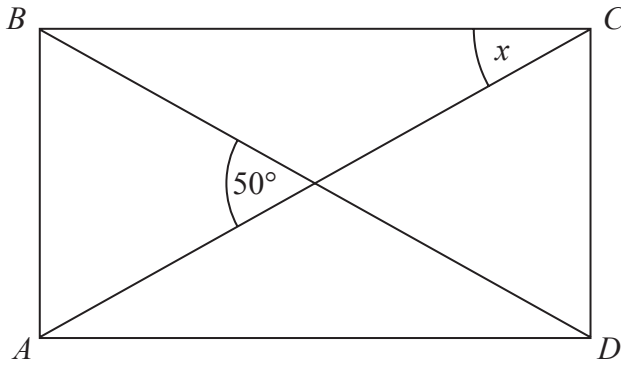
Diagram **NOT** accurately drawn

ABCD is a rectangle.
AC and *BD* are straight lines.
The angle between *AC* and *BD* is 50°.

Work out the size of the angle marked *x*.

....°

(Total for Question 16 is 3 marks)

17 Jane walked from her home to the ice rink and then walked back home.

The travel graph for Jane's journey to the ice rink and back home is shown below.
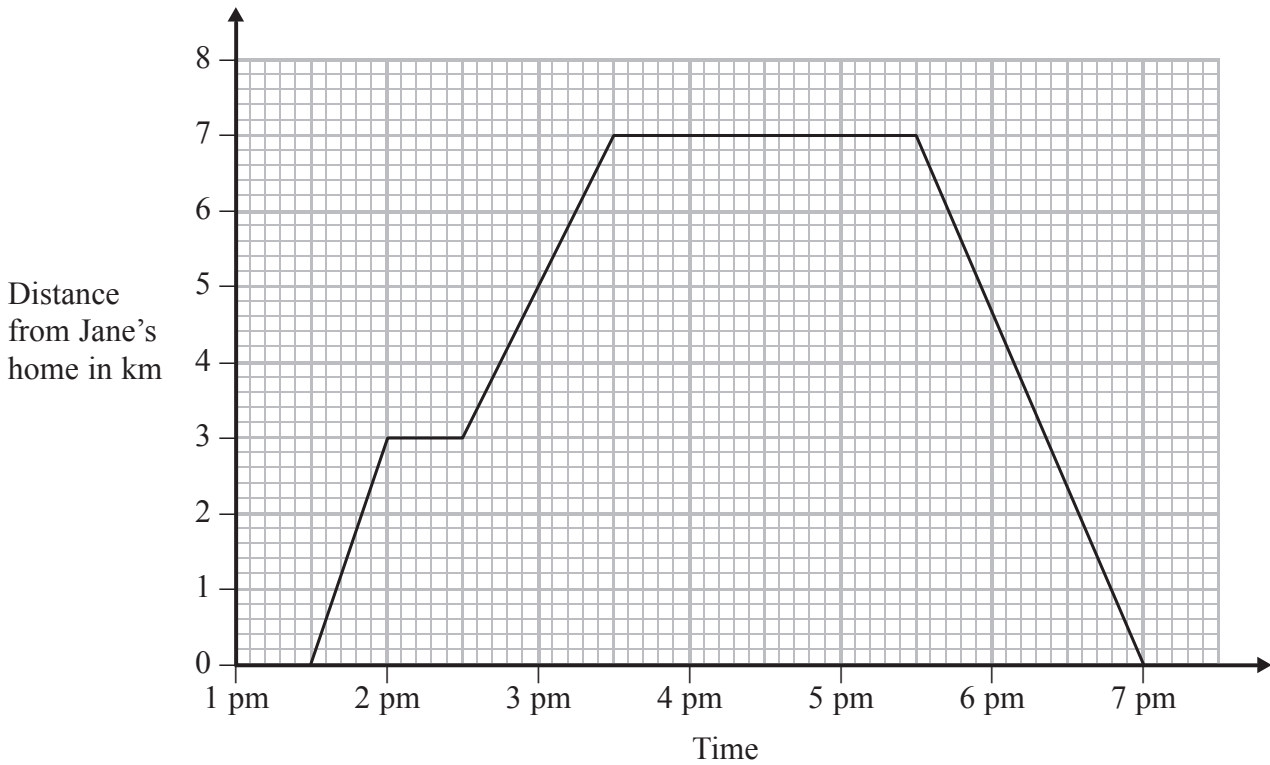
On the way to the ice rink Jane stopped at her friend's house.

(a) How long did Jane stay at her friend's house?

....
(1)

(b) How far is it from her friend's house to the ice rink?

.... km
(1)

(c) What time did Jane leave the ice rink?

....
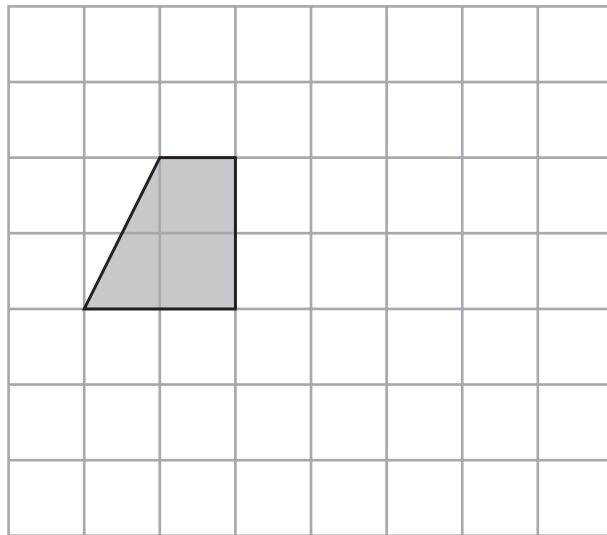(1)

(Total for Question 17 is 3 marks)

18 (a) On the grid, draw an enlargement of the shape using a scale factor of 3
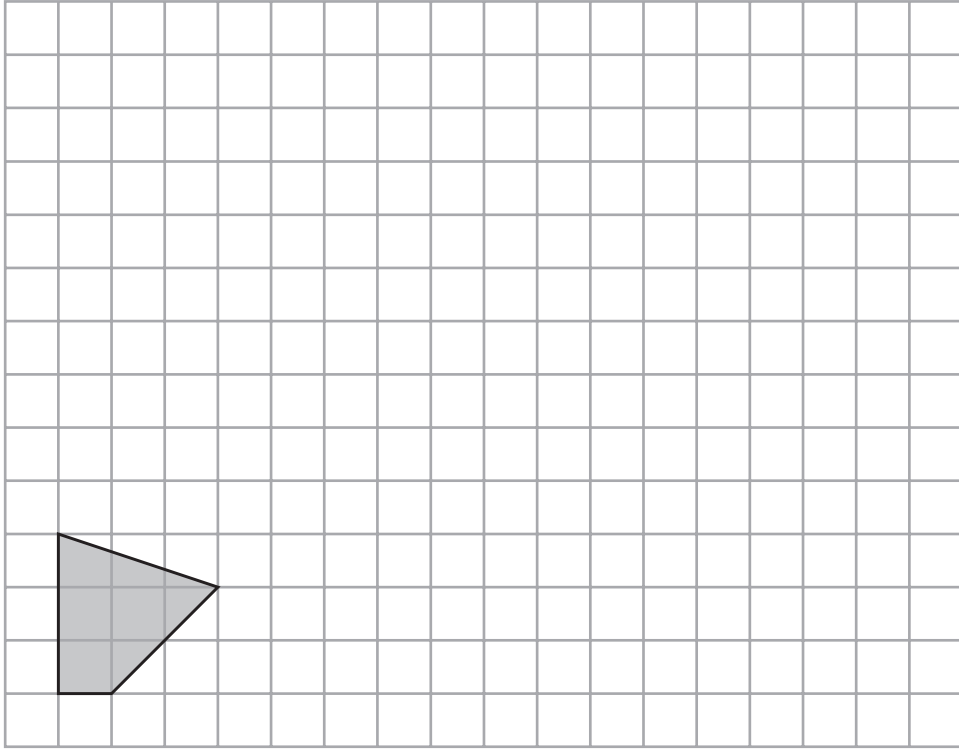
(2)

(b) On the grid below, show how the shape tessellates.
You should draw at least 6 shapes.

(2)

(Total for Question 18 is 4 marks)

19 There are some red counters and some yellow counters in a bag in the ratio $1:5$

(a) What fraction of the counters in the bag are red?

....

(1)

There are 20 yellow counters in the bag.

(b) Work out the number of red counters in the bag.

....

(2)

Janet puts some more red counters into the bag.
The ratio of the number of red counters to the number of yellow counters is now $1:2$
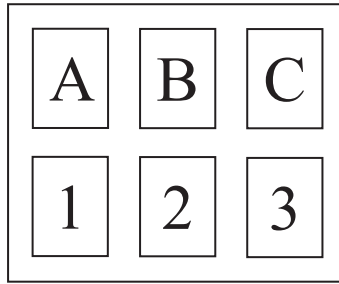
(c) How many red counters does Janet put into the bag?

....

(2)

(Total for Question 19 is 5 marks)

20 The diagram shows a security lock.

$$\begin{array}{ccc} \boxed{A} & \boxed{B} & \boxed{C} \\ \boxed{1} & \boxed{2} & \boxed{3} \end{array}$$

You have to enter the correct code to open the lock.
The correct code is B3

Dan does **not** know the code.

He enters at random one of the letters.
He then enters at random one of the numbers.

Work out the probability that Dan enters the correct code.

....

(Total for Question 20 is 3 marks)

21

Train tickets
day return £6.45
monthly saver £98.50

Sue goes to work by train.

Sue worked for 18 days last month.
She bought a day return ticket each day she worked.

A monthly saver ticket is cheaper than 18 day return tickets.
How much cheaper?

£ ....

(Total for Question 21 is 4 marks)

22 The table shows some information about the ages of 60 teachers.

Age (*a* years)	Frequency
$20 < a \leqslant 30$	6
$30 < a \leqslant 40$	16
$40 < a \leqslant 50$	14
$50 < a \leqslant 60$	22
$60 < a \leqslant 70$	2

(a) Write down the modal class interval.

....

(1)

(b) Draw a frequency polygon for the information in the table.

(2)
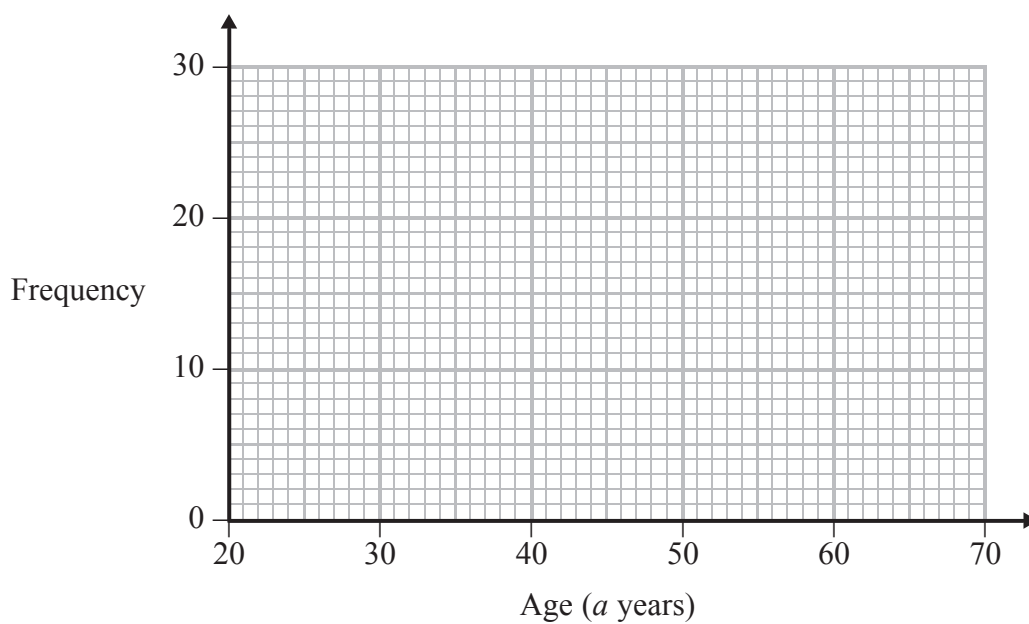
(Total for Question 22 is 3 marks)
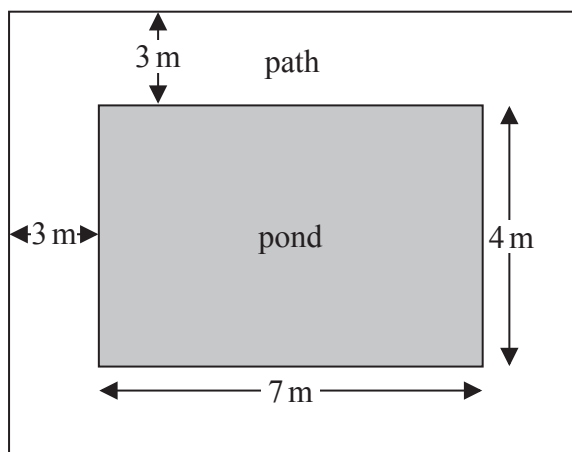
23 The diagram shows a path around a pond.

Diagram **NOT** accurately drawn

The pond is in the shape of a rectangle with length 7 m and width 4 m.
The path is 3 m wide.

Ali is going to cover the path with gravel.
One bag of gravel will cover 10 m² of the path.

How many bags of gravel does Ali need to buy?
You must show your working.

.... bags

(Total for Question 23 is 4 marks)

*24 Two shops, Mega Bathrooms and Bathroom Mart, each have a sale.

Mega Bathrooms
Sale
60% off normal price **then** 15% off

Bathroom Mart
Sale
$\frac{2}{3}$ off normal price

Sally wants to buy some bathroom units.
The units have a normal price of £1500

Sally wants to buy the units as cheaply as possible.

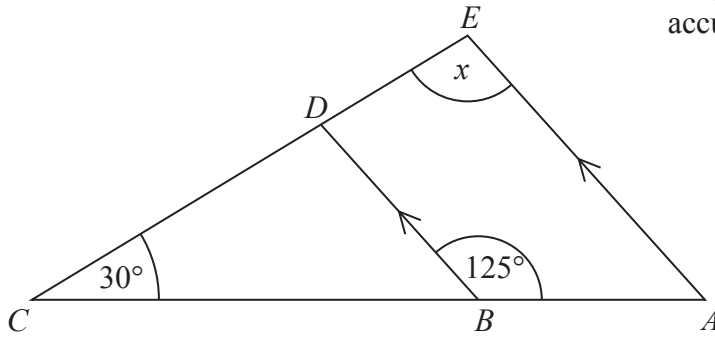Which shop should she buy the units from?
You must show all your working.

(Total for Question 24 is 4 marks)

*25

Diagram **NOT** accurately drawn

ABC and *EDC* are straight lines.
AE and *BD* are parallel.
Angle *ABD* = 125°
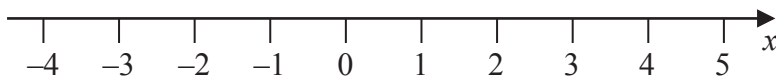Angle *BCD* = 30°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 25 is 4 marks)

26 (a) Show the inequality $x < 3$ on the number line below.

$$\begin{array}{c} \xrightarrow{} x \\ -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \end{array}$$

(2)

(b) Solve the inequality $\quad 4x - 7 \geqslant 13$

....

(2)

(Total for Question 26 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

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