Write your name here

Surname	Other names

Edexcel GCSE

Centre Number | Candidate Number

Mathematics A

Paper 1 (Non-Calculator)

Foundation Tier

Tuesday 6 November 2012 – Morning
Time: 1 hour 45 minutes

Paper Reference
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 ▶

P40672A

6/6/7/4/

P 4 0 6 7 2 A 0 1 3 2

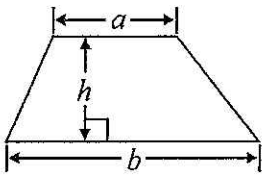
PEARSON

GCSE Mathematics 1MA0

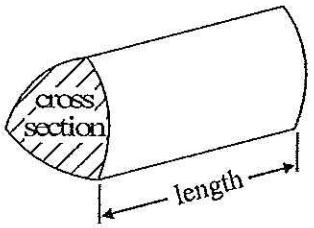
Formulae: Foundation Tier

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 = area of cross section × length



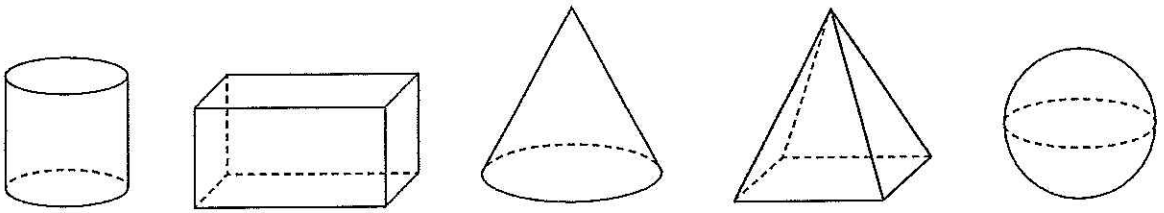
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator.

1 Here are some solid 3-D shapes.



A **B** **C** **D** **E**

(a) Write down the letter of the shape that is a sphere.

E

(1)

(b) Write down the mathematical name of shape **A**.

cylinder

(1)

(c) How many faces does shape **B** have?

6

(1)

(d) How many edges does shape **D** have?

8

(1)

(Total for Question 1 is 4 marks)

2 (a) Write down the number **five hundred and seven** in figures.

507

(1)

(b) Write down the value of the **4** in the number 9346

40

(1)

(c) Write 6431 to the nearest thousand.

6000

(1)

(Total for Question 2 is 3 marks)

---

3 (a) Work out 50% of 86

50% = half it

43

(1)

(b) Work out $3 + 5 \times 2$

$5 \times 2 = 10$ $3 + 10 = 13$

13

(1)

(c) Write down an estimate for $\sqrt{60}$

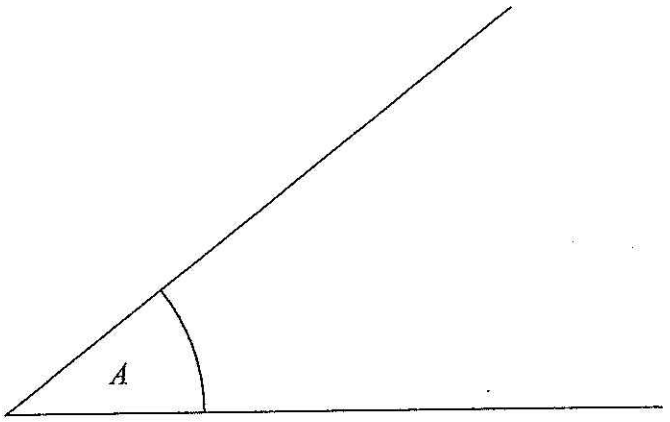
$\sqrt{49} = 7$
$\sqrt{64} = 8$
} between

7.8

(1)

(Total for Question 3 is 3 marks)

4



(a) Measure the size of the angle marked A.

38° °

(1)

(b) In the space below, draw a line of length 5 cm

(1)

(Total for Question 4 is 2 marks)

5 The pictogram shows the number of tins of dog food sold in a shop on Monday, on Tuesday and on Wednesday last week.

Monday	○ ○ ○
Tuesday	○ ○ ○ ○ ◐
Wednesday	○ ○ ◐
Thursday	○ ○ ○ ○ ○ ○
Friday	○ ○ ○ ◐

Key: ○ represents 10 tins

On Thursday, 60 tins of dog food were sold in the shop.
On Friday, 35 tins of dog food were sold in the shop.

(a) Use this information to complete the pictogram

(2)

More tins of dog food were sold on Tuesday than on Monday.

(b) How many more tins?

Mon = 30

Tues = 45

45 - 30 = 15

15

(2)

(Total for Question 5 is 4 marks)

6 The table gives information about the temperatures in Reykjavik for 5 days one week.

Day	Maximum temperature	Minimum temperature
Monday	5 °C	4 °C
Tuesday	8 °C	6 °C
Wednesday	6 °C	−2 °C
Thursday	−1 °C	−4 °C
Friday	−3 °C	−6 °C

diff
1
2
8
3
3

(a) Which day had the highest maximum temperature?

Tuesday

(1)

(b) What is the lowest minimum temperature?

−6 °C

(1)

(c) Which day had the greatest difference between the maximum temperature and the minimum temperature?

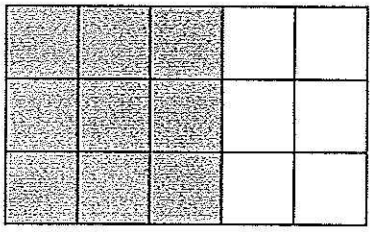
See above

Wednesday

(2)

(Total for Question 6 is 4 marks)

7 (a) Write down the fraction of this shape that is shaded.
Give your fraction in its simplest form



$\frac{9}{15} = \frac{3}{5}$

$\frac{3}{5}$

(2)

(b) Write $\frac{9}{10}$ as a decimal.

0.9

(1)

(c) Tania says that 75% is greater than 0.8

Is she right?
Explain your answer.

No → 0.8 = 0.80 = 80%

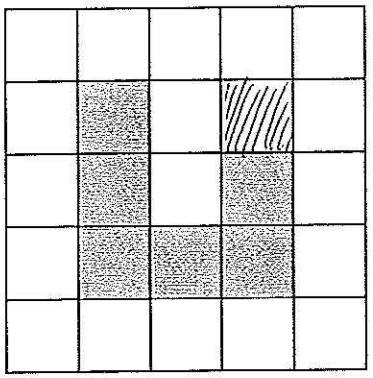
75% is not greater than 80%

so Tania is wrong

(1)

(Total for Question 7 is 4 marks)

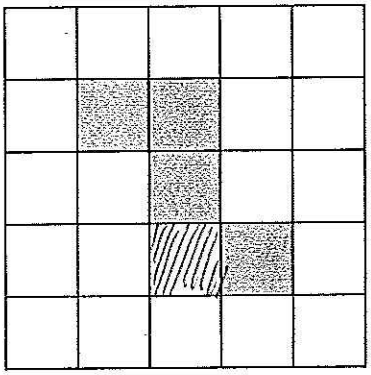
8 (a)



Shade **one** more square to make a pattern with 1 line of symmetry.

(1)

(b)

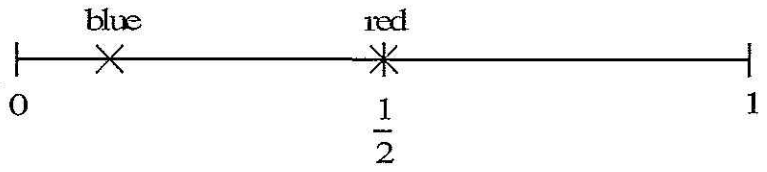


Shade **one** more square to make a pattern with rotational symmetry of order 2

(1)

(Total for Question 8 is 2 marks)

9 (a) The probability scale shows the probability that a spinner will land on red.
It also shows the probability that the spinner will land on blue.



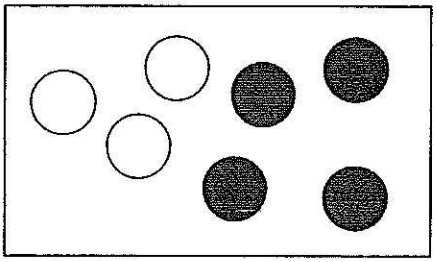
Tony says the spinner is more likely to land on blue than on red.

Is he right?
Explain your answer.

no the probability of red is closer to 1 than blue

(1)

(b) There are 3 white counters and 4 black counters in a box.



Jenny is going to take at random a counter from the box.

(i) Write down the probability that Jenny will take a black counter.

$\frac{4}{7}$

(ii) Write down the probability that Jenny will take a yellow counter.

$\frac{0}{7} = 0$

(2)

(Total for Question 9 is 3 marks)

10 Here are the ticket prices for entry to a museum

Ticket prices
Adult ticket £12 Child ticket £7 Senior ticket £8
Family ticket (2 adult tickets and 2 child tickets) £30

Shamus takes his family to the museum

He gets tickets for

2 adults,
3 children,
1 senior.

Shamus pays the least possible amount of money for the tickets.
He pays with three £20 notes.

How much change should he get?

1 x Family = £30
1 x Child = £7
1 x senior = £8
£45

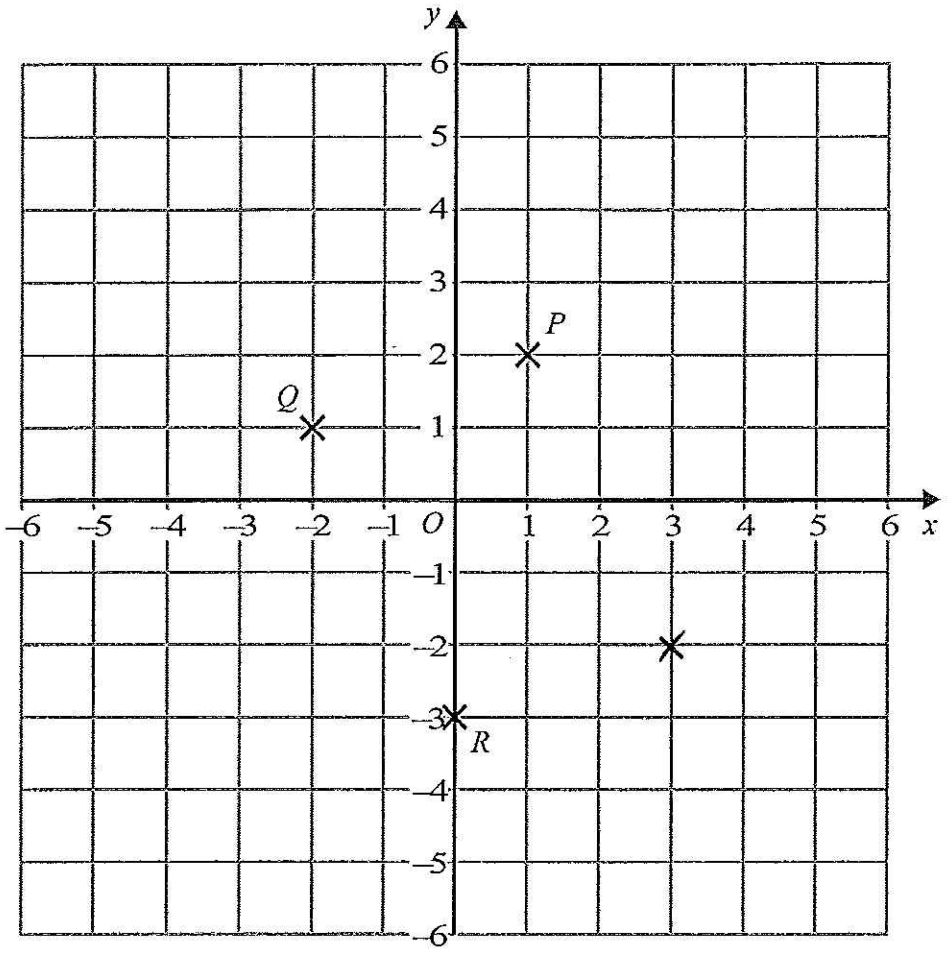
3 x £20 = £60

£60 - £45 = £15

£ 15.00

(Total for Question 10 is 4 marks)

11



(a) Write down the coordinates of the point P.

(1, 2)

(1)

(b) Write down the coordinates of the point R.

(0, –3)

(1)

P, Q and R are three vertices of a parallelogram

(c) Write down the coordinates of the fourth vertex of this parallelogram

(3, –2)

(1)

(Total for Question 11 is 3 marks)

12 Here are the first four terms of a number sequence.

3 7 11 15

(a) (i) Write down the next term in the sequence.

19

(ii) Explain how you got your answer.

add on 4

(2)

(b) Work out the difference between the 10th term and the 15th term in the sequence.

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
3	7	11	15	19	23	27	31	35	39	43	47	51	55	59

15th - 10th

59 - 39 = 20

20

(2)

(Total for Question 12 is 4 marks)

13 (a) Simplify $f+f+f+f-f$

3f

(1)

(b) Simplify $2m \times 3$

6m

(1)

(c) Simplify $3a+2b+a+3b$

4a + 5b

(2)

(Total for Question 13 is 4 marks)

14 Here is part of a bus timetable from Harrow Lane to Cartbridge Street.

Harrow Lane to Cartbridge Street

Harrow Lane	08 02	09 04	10 12	11 02	12 04	12 12
Elm Drive	08 19	09 21	10 29	11 19	12 21	12 29
Hamden Road	08 32	09 34	10 42	11 32	12 34	12 42
Swipe Crescent	08 41	09 43	10 51	11 41	12 43	12 51
Cartbridge Street	08 50	09 52	11 01	11 50	12 52	13 01

A bus goes from Harrow Lane to Cartbridge Street.
The bus leaves Harrow Lane at 08 02

(a) At what time should the bus get to Cartbridge Street?

08 50

(1)

Here is part of a bus timetable from Cartbridge Street to Harrow Lane.

Cartbridge Street to Harrow Lane

Cartbridge Street	13 11	14 14	15 07	16 11	17 14	18 07
Swipe Crescent	13 20	14 24	15 16	16 20	17 24	18 16
Hamden Road	13 29	14 33	15 25	16 29	17 33	18 25
Elm Drive	13 43	14 47	15 39	16 43	17 47	18 39
Harrow Lane	13 53	14 57	15 49	16 53	17 57	18 49

A bus goes from Cartbridge Street to Harrow Lane.
This bus leaves Hamden Road at 13 29

(b) Work out how many minutes this bus should take to go from Hamden Road to Elm Drive.

1329 → 1343 = 14mins

14

(1)

Peter lives in Harrow Lane.
His grandmother lives in Swipe Crescent.

Peter visits his grandmother.
He goes by bus from Harrow Lane to Swipe Crescent.

Peter wants to have at least 3 hours with his grandmother.
He needs to be back at Harrow Lane by 16 00

*(c) Plan Peter's journey to visit his grandmother and get back to Harrow Lane.
You must include the times of the buses.

Last bus back to Harrow Lane by 1600 is arrives at 1549. He must get 1516 bus home from Swipe Cresent.

To give him 3 hours, the latest bus he can arrive on is 1141. This leaves Harrow at 1102.

ANSWER

Harrow to Swipe Crescent 11.02 - 11.41

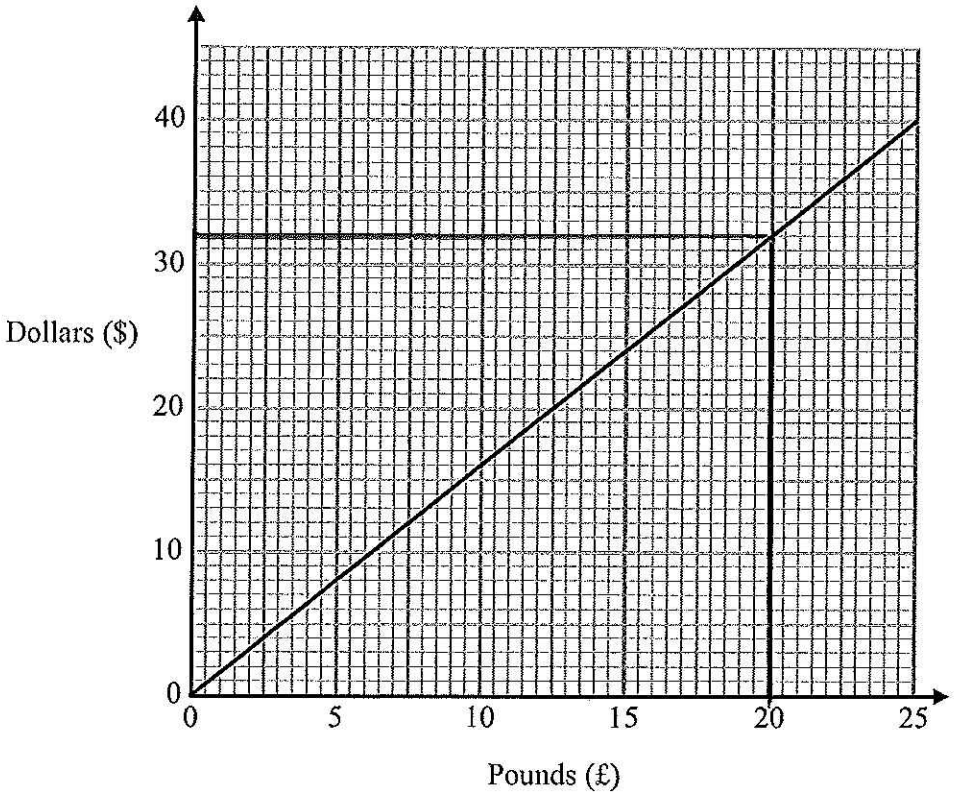
Grandmother (3 hours)

Swipe Crescent to Harrow 1516 - 15.49

(4)

(Total for Question 14 is 6 marks)

15 You can use this graph to change between pounds (£) and dollars ($).



(a) Change £20 into dollars ($).

$ 32

(1)

In London, Sano headphones cost £60
In New York, Sano headphones cost $100

Sano headphones cost more in New York than in London.

(b) How much more?

£20 × 3 = £60

↓

$32 × 3 = $96

$100 − $96 = $4

$4

(3)

(Total for Question 15 is 4 marks)

16 (a) Work out 3^4

$3 \times 3 \times 3 \times 3$

$3 \times 3 = 9$

$3 \times 3 \times 3 = 9 \times 3 = 27$

$3 \times 3 \times 3 \times 3 = 27 \times 3 = 81$

81

(1)

(b) Write down the cube root of 64

$\sqrt[3]{64} \rightarrow ? \times ? \times ? = 64$

$1 \times 1 \times 1 = 1$

$2 \times 2 \times 2 = 8$

$3 \times 3 \times 3 = 27$

$(4) \times 4 \times 4 = 64$

4

(1)

(Total for Question 16 is 2 marks)

---

17 (a) Solve $y + 5 = 12$

$? + 5 = 12$

$12 - 5 = 7$

$y =$ 7

(1)

(b) Solve $\frac{x}{4} = 3$

$? \div 4 = 3$

$3 \times 4 = 12$

$x =$ 12

(1)

(c) Solve $5w - 6 = 10$

(+6) (+6)

$5w = 16$

(÷5) (÷5)

$w = \frac{16}{5}$

$w =$ $\frac{16}{5}$

(2)

(Total for Question 17 is 4 marks)

18 Yan recorded the ages, in years, of a sample of people at a fairground.

He drew this stem and leaf diagram for his results.

mode

1	5 5 7 7 7 7 9
2	0 3 7 8 8
3	4 6 7 7
4	2 5 9
5	0 5

Key:

1 | 5 represents 15 years of age

(a) Write down the number of people in the sample.

21

(1)

(b) Write down the mode.

17 years

(1)

(c) Work out the range.

biggest - smallest = 55 - 15 = 40

40 years

(2)

(Total for Question 18 is 4 marks)

*19

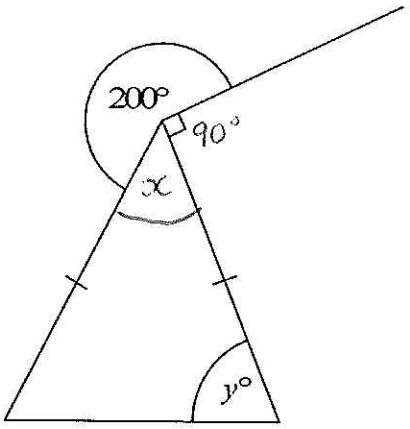


Diagram **NOT** accurately drawn

Work out the value of y.
Give reasons for your answer.

$x = 70°$ because angles around a point add up to 360°
$(360 - 200 - 90 = 70)$

The triangle is isosceles and the angles add up to 180° → both base angles are the same

$180 - 70 = 110$

$\frac{110}{2} = 55°$

(Total for Question 19 is 4 marks)

20 Sapir buys 60 bags.
She pays £3 for each bag.

Sapir sells $\frac{1}{2}$ of the bags for £5 each.

She sells $\frac{1}{3}$ of the bags for £4 each.

Sapir wants to make a total profit of £75

How much should she sell each of the remaining bags for?

60 × 3 = £180

$\frac{1}{2}$ of 60 = 30 30 × 5 = £150

$\frac{1}{3}$ of 60 = 20 20 × 4 = £80

£150 + £80 = £230 £75 + £180 = £255

£255 - £230 = £25 more is needed

60 - 30 - 20 = 10 bags left

25 ÷ 10 = £2·50

£ 2·50

(Total for Question 20 is 4 marks)

21 Felicity asked 100 students how they came to school one day.
Each student walked or came by bicycle or came by car.

49 of the 100 students are girls.
10 of the girls came by car.
16 boys walked.
21 of the 41 students who came by bicycle are boys.

Work out the total number of students who walked to school.

	Walked	Bike	Car	Total
Boys	16	21	14	51
Girls	19	20	10	49

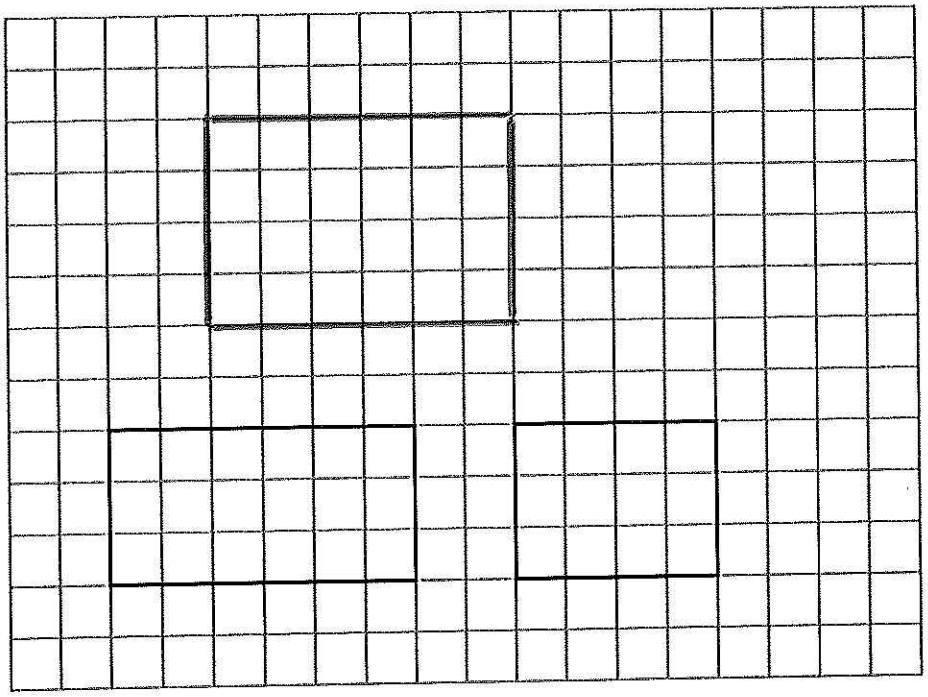
16 + 19 = 35

35

(Total for Question 21 is 4 marks)

22 The front elevation and the side elevation of a cuboid are drawn on the grid.

On the grid, draw the plan of the cuboid.



(Total for Question 22 is 2 marks)

23 Here are the ingredients needed to make 16 gingerbread men.

Ingredients to make **16** gingerbread men
180 g flour
40 g ginger
110 g butter
30 g sugar

(half)
8 gingerbread

90g
20g
55g
15g

Hamish wants to make 24 gingerbread men.

Work out how much of each of the ingredients he needs.

Flour = 180 + 90

Ginger = 40 + 20

Butter = 110 + 50

Sugar = 30 + 15

270 ..... g flour

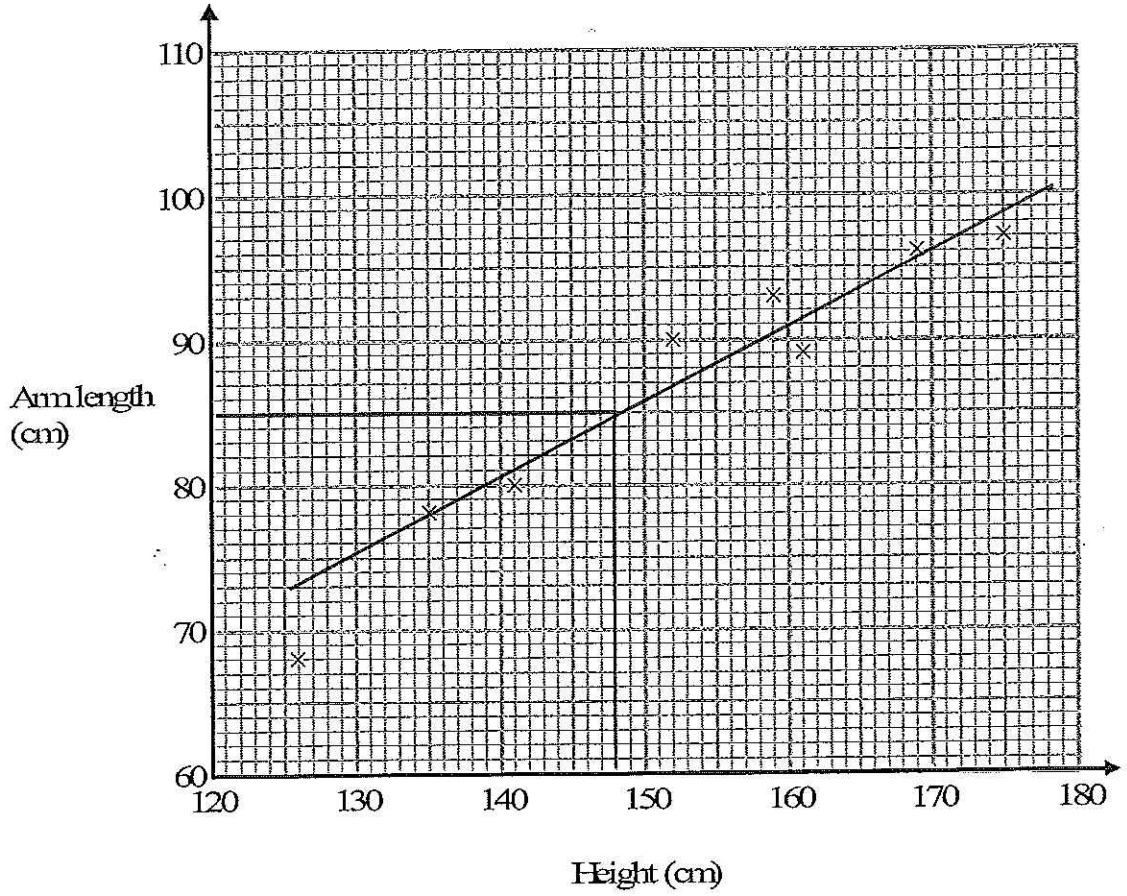
60 ..... g ginger

165 ..... g butter

45 ..... g sugar

(Total for Question 23 is 3 marks)

24 The scatter graph shows information about the height and the arm length of each of 8 students in Year 11



(a) What type of correlation does this scatter graph show?

positive

(1)

A different student in Year 11 has a height of 148 cm

(b) Estimate the arm length of this student.

85 cm

(2)

(Total for Question 24 is 3 marks)

25 Here is a diagram of Jim's garden.

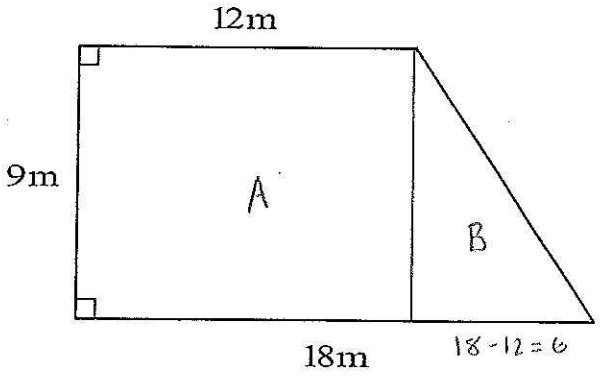


Diagram **NOT** accurately drawn

Jim wants to cover his garden with grass seed to make a lawn.

Grass seed is sold in bags.
There is enough grass seed in each bag to cover 20 m² of garden.

Each bag of grass seed costs £4.99

Work out the least cost of putting grass seed on Jim's garden.

A: $12 \times 9 = 108 m^2$

B: $\frac{6 \times 9}{2} = \frac{54}{2} = 27 m^2$

Total Area = $108 + 27 = 135 m^2$

20
40
60
80
100
120
140 7 bags needed

$7 \times £4.99$

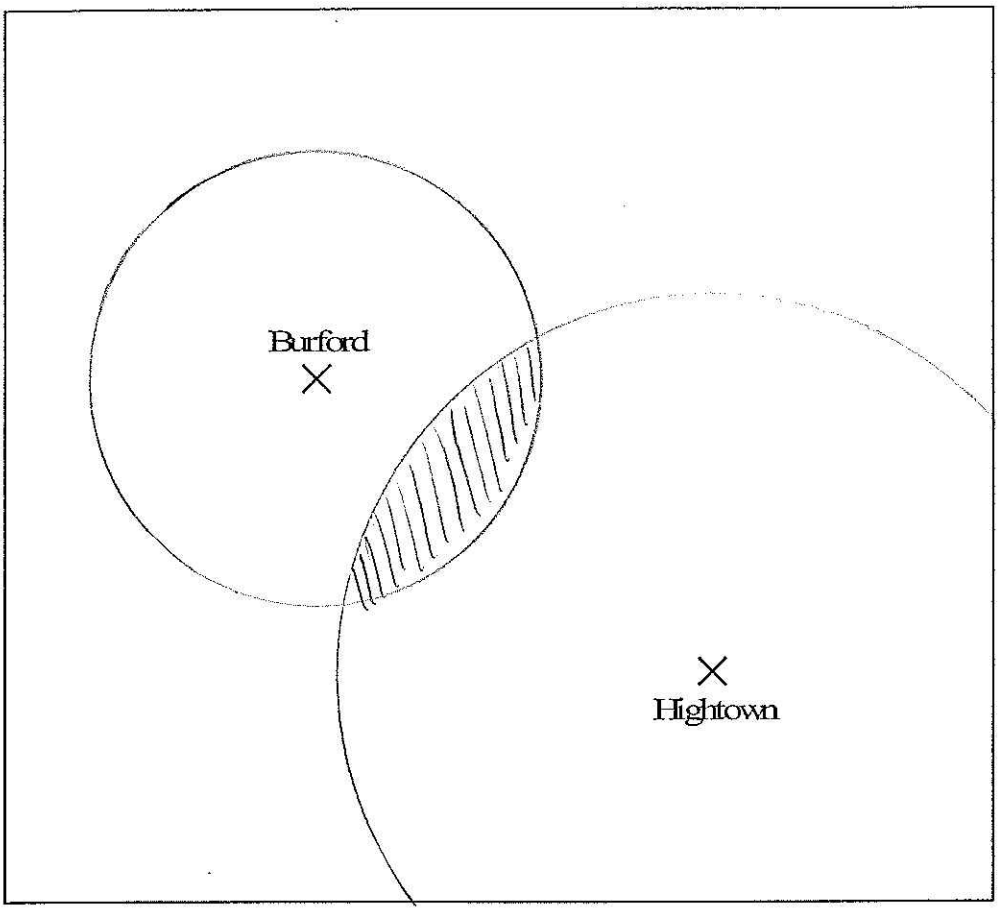
$7 \times £5 = £35.00$

take off $7 \times 1p = 7p$

£ £34.93

(Total for Question 25 is 4 marks)

28 Here is a map.
The map shows two towns, Burford and Hightown.



Scale: 1 cm represents 10 km

A company is going to build a warehouse.

The warehouse will be less than 30 km from Burford **and** less than 50 km from Hightown.

Shade the region on the map where the company can build the warehouse.

(Total for Question 28 is 3 marks)

*29 Talil is going to make some concrete mix.
He needs to mix cement, sand and gravel in the ratio 1 : 3 : 5 by weight.

Talil wants to make 180 kg of concrete mix.

Talil has

15 kg of cement
85 kg of sand
100 kg of gravel

Does Talil have enough cement, sand and gravel to make the concrete mix?

1 + 3 + 5 = 9

180 ÷ 9 = 20

Needs

cement = 1 × 20 = 20kg × 20 − 15 = 5

sand = 3 × 20 = 60kg ✓

gravel = 5 × 20 = 100kg ✓

No Talil need 5kg more cement

(Total for Question 29 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

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