

**Wednesday 2 November 2016 – Morning**

**GCSE MATHEMATICS B**

**J567/01** Paper 1 (Foundation Tier)

Candidates answer on the Question Paper.

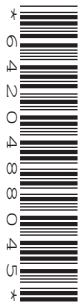
**OCR supplied materials:**

None

**Other materials required:**

- Geometrical instruments
- Tracing paper (optional)

**Duration:** 1 hour 30 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- Quality of written communication is assessed in questions marked with an asterisk (\*).
- The total number of marks for this paper is **100**.
- This document consists of **24** pages. Any blank pages are indicated.

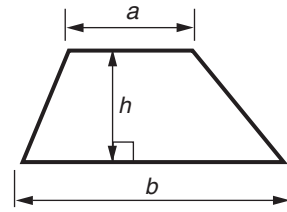
**WARNING**



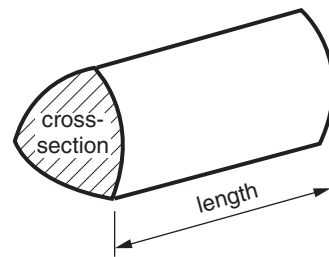
**No calculator can be used for this paper**

## Formulae Sheet: Foundation Tier

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



**Volume of prism** = (area of cross-section)  $\times$  length



**PLEASE DO NOT WRITE ON THIS PAGE**

Answer **all** the questions.

- 1 Janek and two friends went to a restaurant.

<b>Pizza Menu</b>	
Margherita	£6.75
Hawaiian	£7.45
Pepperoni	£8.10
Meat Feast	£8.75
Four Seasons	£9.30

- (a) They ordered two Hawaiian pizzas and one Meat Feast pizza.

How much did these three pizzas cost altogether?

(a) £ ..... [2]

- (b) Janek used two twenty pound notes to pay for all three pizzas.

How much change should he receive?

(b) £ ..... [2]

2 Sarah has a dog.

(a) She gives her dog 250 ml of water every day.

How much water does Sarah give her dog in one week?

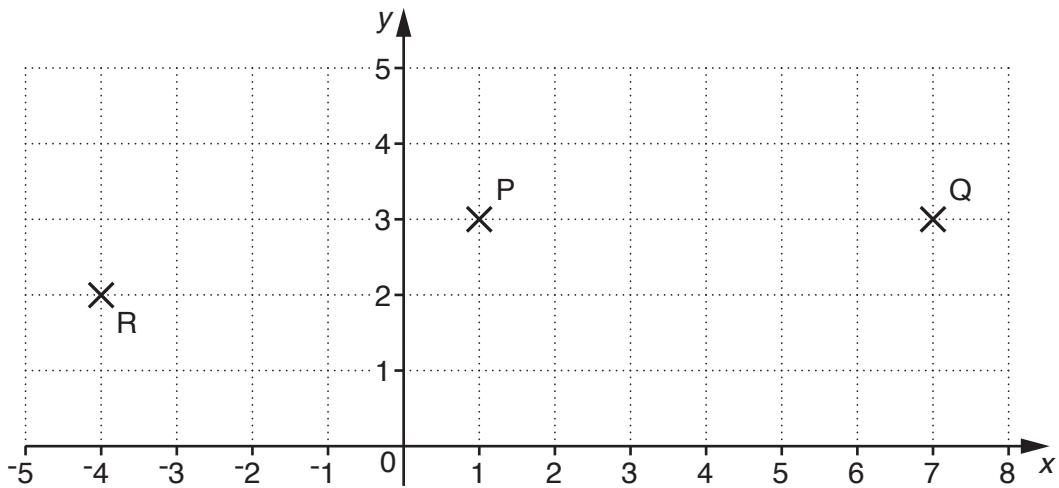
(a) ..... ml [2]

(b) Sarah buys a 6 kg bag of dog food.  
She gives her dog 300 grams of dog food every day.

For how many days will the bag of dog food last?

(b) ..... [3]

3 Points P, Q and R are shown on this one-centimetre square grid.



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

(a)(i) ( ..... , ..... ) [1]

(ii) Write down the coordinates of point R.

(ii) ( ..... , ..... ) [1]

(b) PQ is the diameter of a circle.  
The circle has its centre at point C.

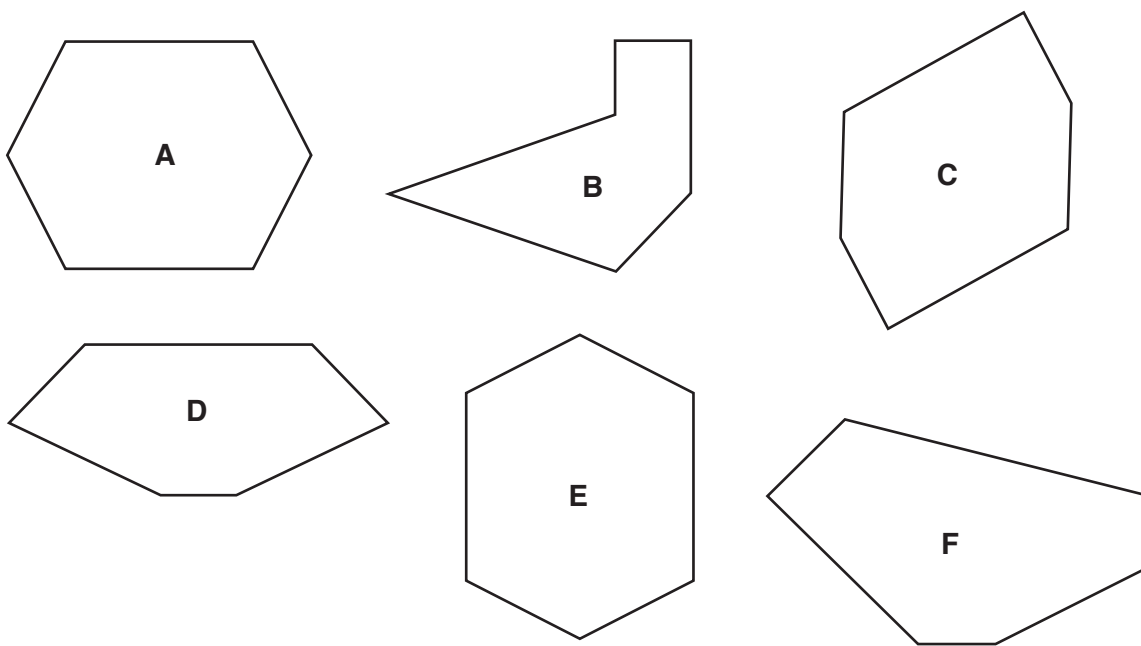
(i) Work out the coordinates of point C.

(b)(i) ( ..... , ..... ) [1]

(ii) Find the radius of this circle.

(ii) ..... cm [1]

4 (a) Ewan has drawn these hexagons.



(i) Which hexagon contains a reflex angle?

(a)(i) ..... [1]

(ii) Which hexagon has **just one** line of symmetry?

(ii) ..... [1]

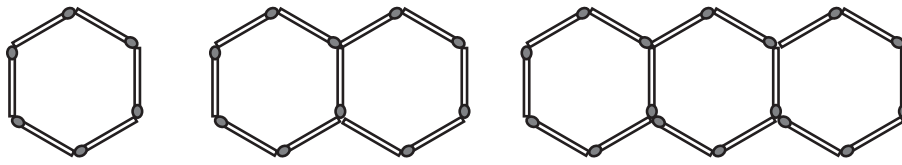
(iii) Which hexagon has rotational symmetry of order 2 and no line of symmetry?

(iii) ..... [1]

(iv) Which **two** hexagons are congruent?

(iv) ..... and ..... [1]

(b) Marie uses matchsticks to make this sequence of patterns of hexagons.



(i) Complete this table.

Number of hexagons	1	2	3	4	5
Number of matchsticks	6	11	16		

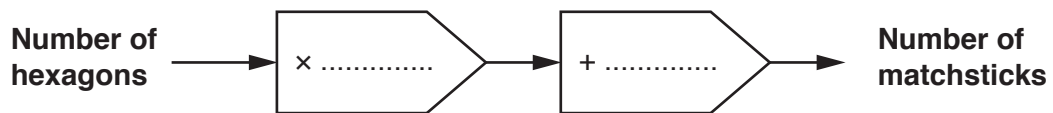
[1]

(ii) The sequence is continued.

How many matchsticks will there be when there are 8 hexagons?

(b)(ii) ..... [1]

(iii) Complete the rule for the patterns.



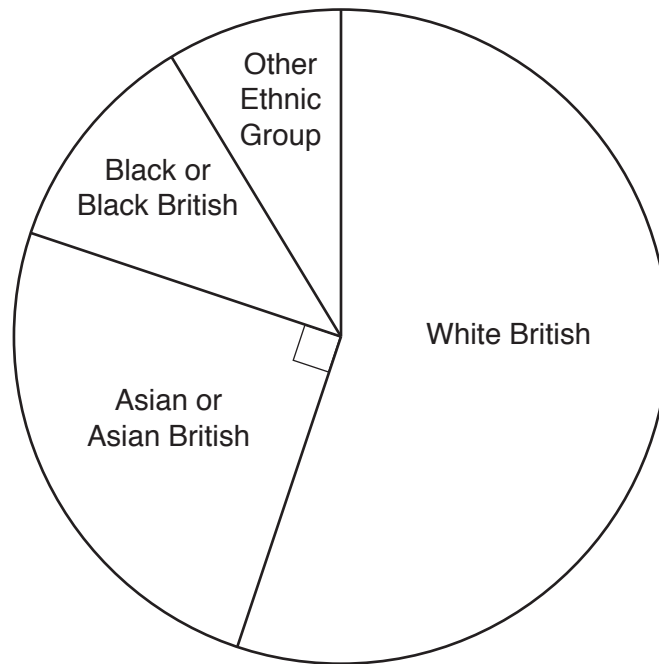
[2]

(iv) How many **hexagons** will there be when there are 101 matchsticks?

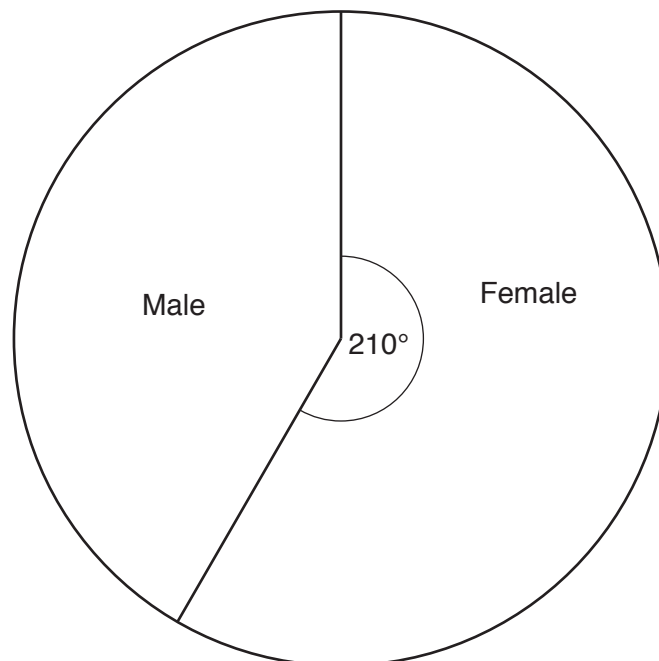
(iv) ..... [1]

- 5 A health centre carried out a survey.  
These are the results.

Question asked: Which ethnic group do you consider yourself to belong to?

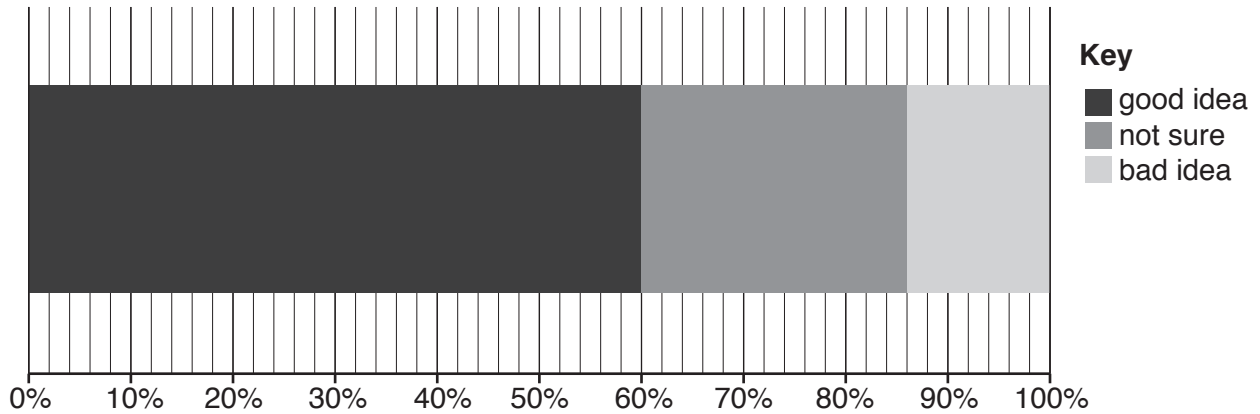


Question asked: Which gender are you?





Question asked: Do you think it is a good idea to receive texts to remind you of your next appointment?



260 patients took part in the survey and all of them answered every question.

(a) How many patients consider their ethnic origin to be Asian or Asian British?

(a) ..... [2]

(b) What fraction of the patients is female?  
Give your answer in its simplest form.

(b) ..... [2]

(c) (i) What percentage of patients think it is a **bad idea** to receive texts to remind them of their next appointment?

(c)(i) ..... % [1]

(ii) How **many** patients think it is a good idea to receive texts to remind them of their next appointment?

(ii) ..... [2]

6 Simplify fully.

(a)  $g + 3g + 6g$

(a) ..... [1]

(b)  $4x + 3y - 1 + 2x - 6y + 5$

(b) ..... [2]

7 (a) Write each fraction as a percentage.

(i)  $\frac{1}{4}$

(a)(i) ..... % [1]

(ii)  $\frac{2}{5}$

(ii) ..... % [1]

(b) Work out.

$\frac{5}{7}$  of 42

(b) ..... [2]

8 Three friends Holly, Poppy and Zoe travel by plane from London to Edinburgh.

(a) (i) Their outward flight leaves London at 4.30 pm and arrives in Edinburgh at 6.25 pm.

How long does the flight take?

(a)(i) ..... hour(s) ..... minutes [1]

(ii) Their return flight leaves Edinburgh at 7.55 pm.  
The flight takes 2 hours and 13 minutes.

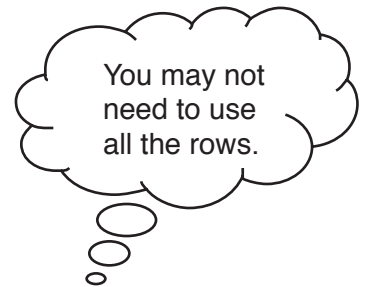
At what time do they arrive in London?

(ii) ..... pm [1]

(b) On the outward flight they have reserved seats G1, G2 and G3.  
The girls can sit in any of these seats.

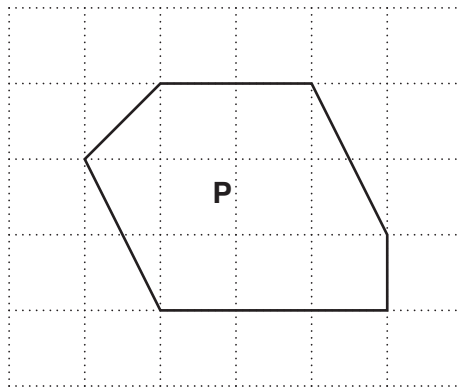
Complete the table to show all the possible orders in which Holly (H), Poppy (P) and Zoe (Z) can sit.

G1	G2	G3
H	P	Z



[2]

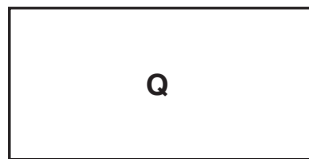
9 (a) Shape **P** is drawn on this one-centimetre square grid.



Work out the area of shape **P**.

(a) ..... cm<sup>2</sup> [2]

(b) Shape **Q** is a rectangle.

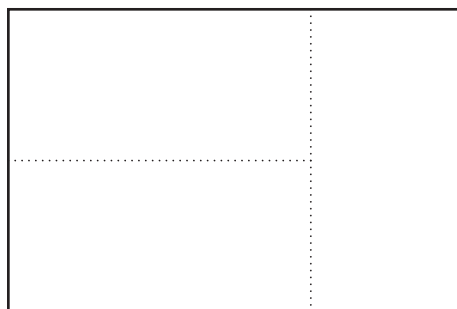


Not to scale

It has an **area** of 32 cm<sup>2</sup>.

The length and width of the rectangle are whole numbers.

The shape below contains three rectangles that are identical to shape **Q**.



Not to scale

Work out the **perimeter** of this shape.

(b) ..... cm [3]

10 (a) This table shows the lowest recorded temperatures in countries in the UK.

Country	Temperature
England	$-26.1^{\circ}\text{C}$
Northern Ireland	$-18.7^{\circ}\text{C}$
Scotland	$-27.2^{\circ}\text{C}$
Wales	$-23.3^{\circ}\text{C}$

(i) Which country has the lowest of the recorded temperatures?

(a)(i) ..... [1]

(ii) What is the difference between the lowest recorded temperature in Northern Ireland and the lowest recorded temperature in Wales?

(ii) .....  $^{\circ}\text{C}$  [1]

(b) Work out.

(i)  $-7 \times 6$

(b)(i) ..... [1]

(ii)  $-4 - -13$

(ii) ..... [1]

11 (a) The scale on a map is 2 cm represents 1 km.

(i) The distance between two villages on the map is 9 cm.

What is the actual distance between the two villages?

(a)(i) ..... km [1]

(ii) The actual distance between two towns is 7.3 km.

What is the distance between the two towns on the map?

(ii) ..... cm [1]

(b) The scale on a different map is 1 to 25 000.

The distance between two farms on this map is 3 cm.

What is the actual distance between the two farms in **metres**?

(b) ..... m [2]

(c) Jake sets out for a walk on a bearing of  $135^\circ$ .

In which compass direction is he heading?

(c) ..... [1]

- 12 Each of the rows, columns and diagonals in a magic square adds up to the same total. This is a magic square.

9	$2m + p$	7
8	10	12
13	$m$	11

- (a) Work out the value of  $m$ .

(a) ..... [2]

- (b) Work out the value of  $p$ .

(b) ..... [2]

- 13 (a) Round 346.63

- (i) to one decimal place,

(a)(i) ..... [1]

- (ii) to two significant figures.

(ii) ..... [1]

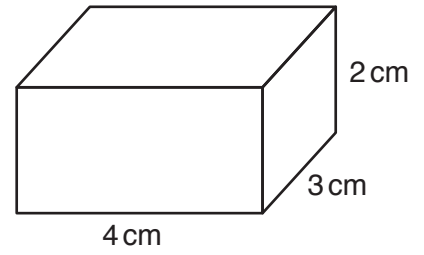
- (b) Estimate the answer to

$$29.2 \times 417.$$

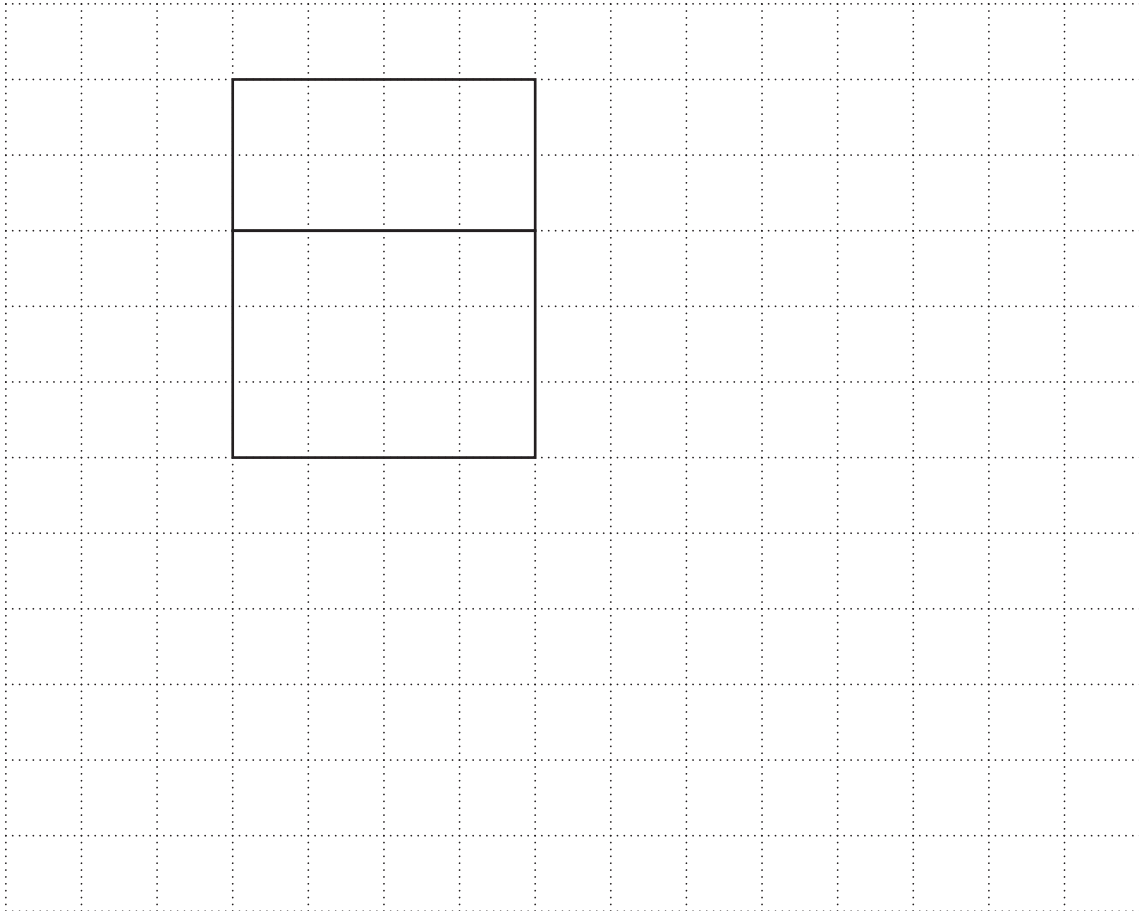
Show your working.

(b) ..... [2]

14 (a) A cuboid has length 4 cm, width 3 cm and height 2 cm.

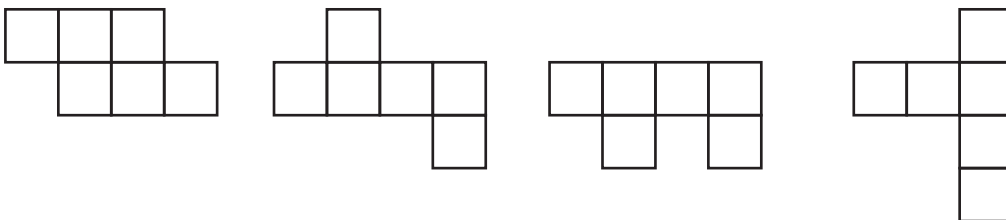


Complete the net of the cuboid on this one-centimetre square grid.



[2]

(b) These diagrams all contain six identical squares joined edge to edge.



Which one of these diagrams is the net of a cube?  
Circle the correct diagram.

[1]



- 15 (a) Corrie has a bowl of fruit.  
The bowl of fruit contains 3 peaches, 4 oranges and 6 plums.

Corrie takes a piece of fruit from the bowl at random.

What is the probability that the piece of fruit is

- (i) an orange,

(a)(i) ..... [1]

- (ii) a banana?

(ii) ..... [1]

- (b) Lucy has a box of fruit that only contains apples and pears.  
If she takes a piece of fruit from the box at random, the probability that she takes a pear is  $\frac{3}{8}$ .

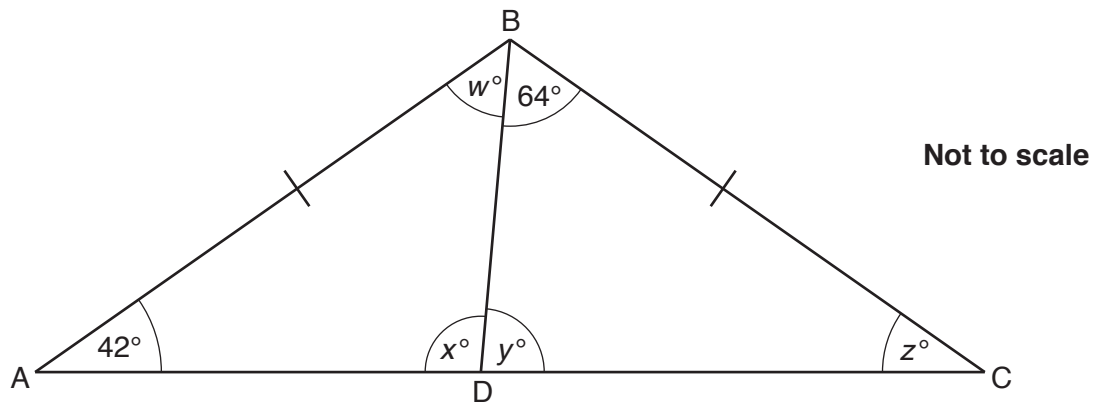
Lucy takes two pears from her box and eats them.

If Lucy now takes a piece of fruit from the box at random, the probability that she takes a pear is  $\frac{2}{7}$ .

How many apples and how many pears were in the box to start with?

(b) ..... apples  
..... pears [2]

16\* In the diagram  $AB = BC$  and  $ADC$  is a straight line.

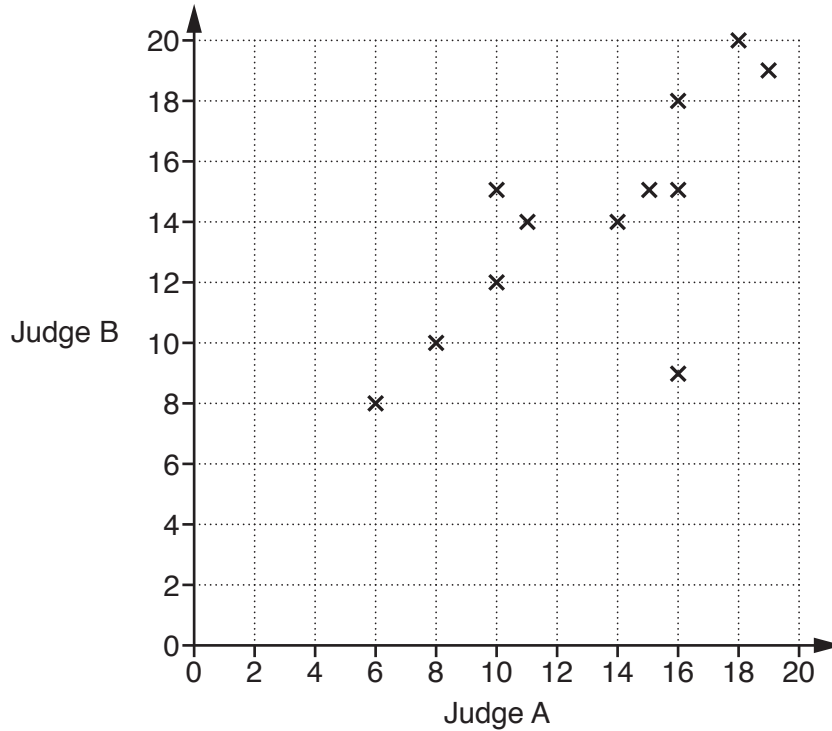


Work out the value of  $x$ .

Give a reason for each step of your working.

..... [5]

- 17 There are two judges, judge A and judge B, in a dance competition. They both gave a score out of 20 for each competitor. The scatter diagram shows the scores that the two judges gave for twelve of the competitors.



- (a) The scores for one competitor did not fit the pattern for all of the other pairs of scores.

Circle the point on the diagram representing this competitor.

[1]

- (b) Ruta also took part in the competition. Judge A gave Ruta a score of 12 for her dance.

Draw a line of best fit and use it to estimate the score that judge B gave to Ruta.

(b) ..... [2]

18 (a) Work out the value of  $5p + p^2$  when

(i)  $p = 4$ ,

(a)(i) ..... [1]

(ii)  $p = -3$ .

(ii) ..... [2]

(b) Solve.

$$7x - 9 = 4x + 15$$

(b)  $x =$  ..... [3]

19 The scale diagram shows the positions of two schools, A and B.

**Scale: 2 cm represents 1 km**



School A accepts students who live less than 2 km from the school.  
School B accepts students who live less than 2.5 km from the school.

Construct and shade the region in which students live who could be accepted by **both** school A and school B.

**[3]**

20 The ages of the first 20 people who visited a gym one morning are listed below.

42 53 37 29 21 31 40 62 26 39  
 20 35 48 57 65 28 31 36 47 41

(a) Complete this stem and leaf diagram to represent the data.

2	
3	
4	
5	
6	

Key: 4 | 2 represents 42

[3]

(b) Find the median age.

(b) ..... [2]

(c) Work out the percentage of these people who were aged under 30.

(c) ..... % [2]

21 Fraser makes a snack mix.

He mixes cashew nuts, almonds and cranberries in the ratio 5 : 3 : 2.

A 250 g bag of cashew nuts costs £4.75.

A 100 g bag of almonds costs £2.15.

A 100 g bag of cranberries costs £1.90.

Work out how much it costs Fraser to make 1 kg of the snack mix.

£ ..... [4]

22 (a) Write  $\frac{1}{9}$  as a decimal.

(a) ..... [1]

(b) Work out.

$$1\frac{1}{3} \times \frac{2}{5}$$

(b) ..... [2]

**END OF QUESTION PAPER**

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