

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS B

J567/02

Paper 2 (Foundation Tier)

Candidates answer on the question paper.

OCR Supplied Materials:
None

- Other Materials Required:**
- Geometrical instruments
 - Tracing paper (optional)
 - Scientific or graphical calculator

ADDITIONAL SPECIMEN

Duration: 1 hour 30 minutes



| | | | |
|--------------------|--|-------------------|--|
| Candidate Forename | | Candidate Surname | |
|--------------------|--|-------------------|--|

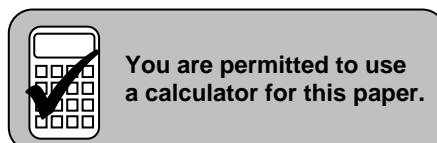
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|---------------|--|--|--|--|--|------------------|--|--|--|--|
| Centre Number | | | | | | Candidate Number | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that 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.
- Answer **all** the questions.
- 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).

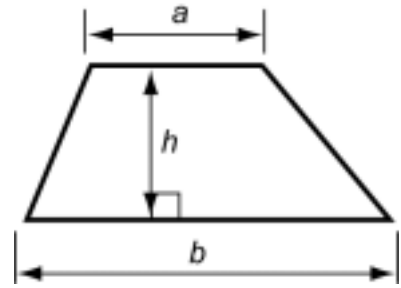
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- You are permitted to use a calculator for this paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- Your 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.

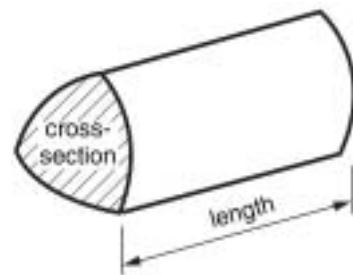


Formulae Sheet: Foundation Tier

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



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



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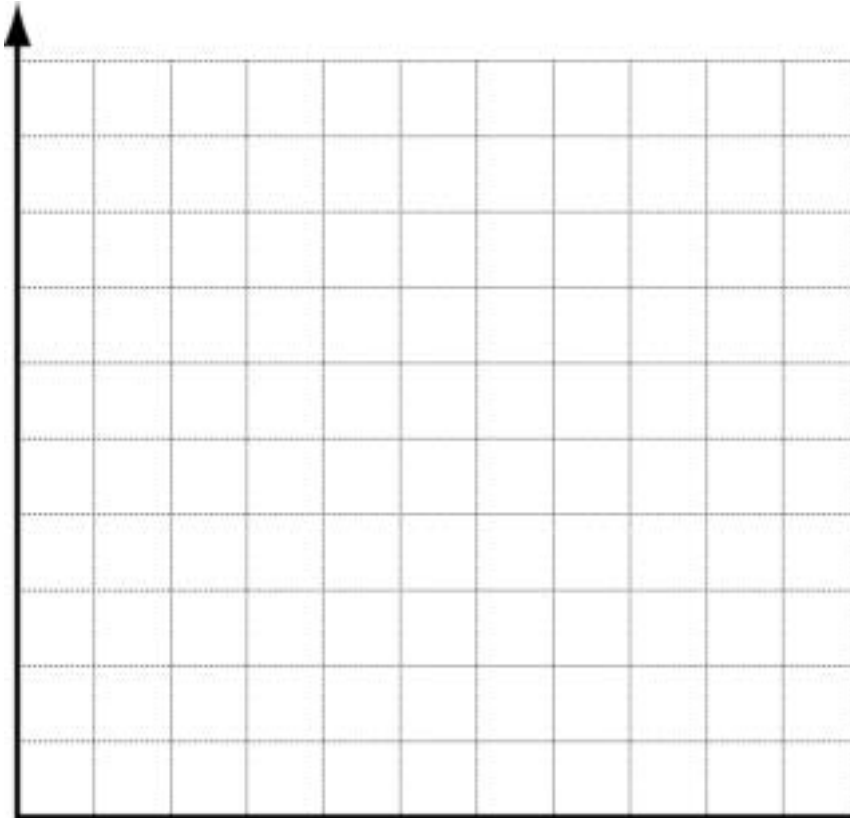
1 Desmond asks each of the students in his class:

What is your favourite animal?

His results are summarised in the table below.

| Animal | Number of pupils |
|---------|------------------|
| Dog | 8 |
| Cat | 6 |
| Hamster | 3 |
| Parrot | 2 |
| Other | 5 |

(a) Draw a **labelled** bar chart to show these results.



[4]

(b) Write one comment about Desmond's results.

[1]

2 (a) Calculate.

$$93.26 \times 73$$

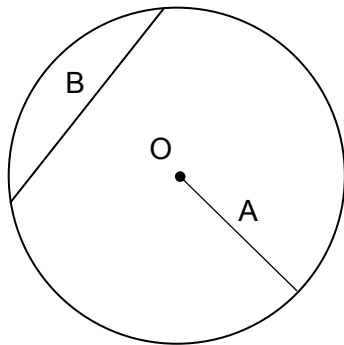
Write your answer correct to the nearest hundred.

(a) _____ [2]

(b) Work out $\frac{5}{8}$ of 672.

(b) _____ [2]

3 (a) Here is a circle with centre O.



Write the names of the lines A and B.

(a) A _____

B _____ [2]

(b) Write down the name of this shape.



(b) _____ [1]

4 Here are the first four terms of a sequence.

6 10 14 18

(a) Write down the fifth term in this sequence.

(a) _____ [1]

(b) Explain how you found the fifth term.

_____ [1]

(c) Work out the tenth term in this sequence.

(c) _____ [1]

(d) Yuresh thinks that 399 is in this sequence.

Explain why Yuresh is wrong.

_____ [1]

5 Simplify.

(a) $6a + 4a - 3a$

(a) _____ [1]

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

(b) _____ [2]

6 Work out.

(a) $\frac{48195}{172 + 83}$

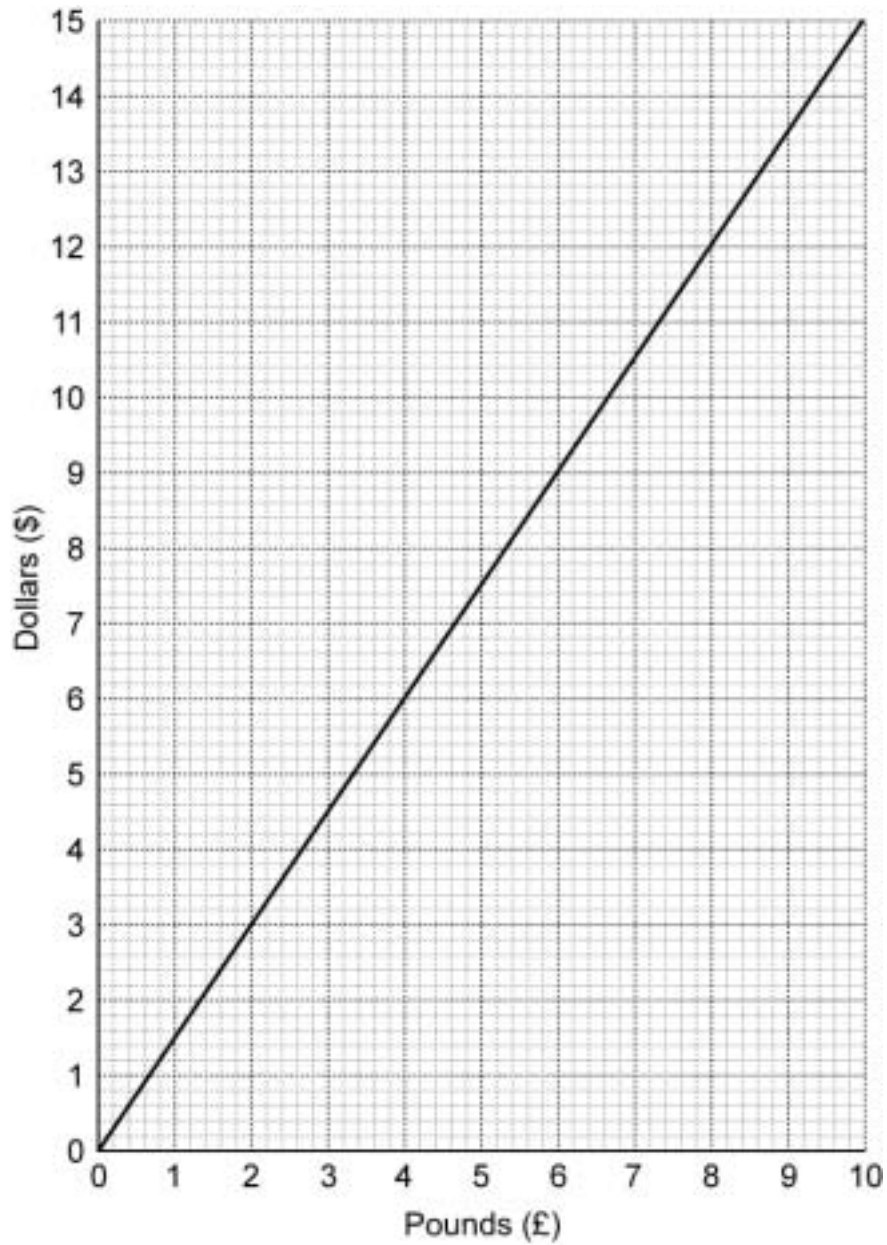
(a) _____ [1]

(b) $\sqrt{60}$

Write your answer correct to 3 significant figures.

(b) _____ [2]

7 (a) Here is a graph to convert between pounds and dollars.



(i) Use the graph to convert £6 to dollars.

(a)(i) \$ _____ [1]

(ii) Ruth buys a handbag in New York for \$24.
What is the cost of the handbag in pounds?

(ii) £ _____ [2]

- (b) Ruth goes into a department store.
Here are the amounts she spends, in dollars, in each department.

32 24 16 48 124 35 32 57

- (i) Find the mode of these amounts.

(b)(i) \$ _____ [1]

- (ii) Calculate the mean.

(ii) \$ _____ [3]

8 These cards show some steps in solving equations.

| | | | | |
|---------------|--------------|---------------|---------------|-----------|
| $2x - 3 = 18$ | $x = 7.5$ | $x - 3 = 4.5$ | $x = 12$ | $2x = 15$ |
| $2x = 21$ | $2x - 6 = 9$ | $2x = 24$ | $2x - 6 = 18$ | |
| $2x = 12$ | $x = 6$ | $2x - 3 = 9$ | $x = 10.5$ | |

Fatima is solving this equation.

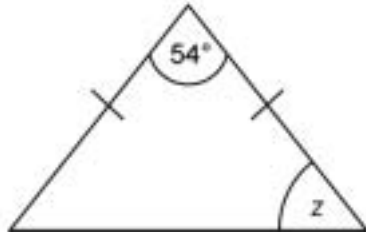
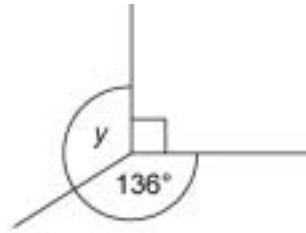
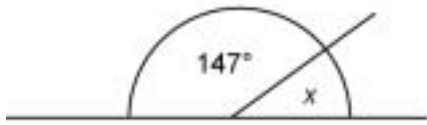
$$2(x - 3) = 9$$

Use some of these cards to solve Fatima's equation.

$$2(x - 3) = 9$$

[3]

9 (a) Work out angles x , y and z , giving reasons for your answers in each case.



Not to scale

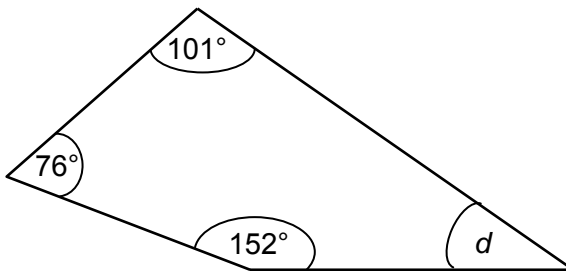
$x =$ _____ $^{\circ}$ because _____

$y =$ _____ $^{\circ}$ because _____

$z =$ _____ $^{\circ}$ because _____

[6]

(b)



Not to scale

Ugochi says that angle d is 51° .

Is Ugochi right?
Explain how you know.

Write Yes
or No.

_____ because _____

[1]

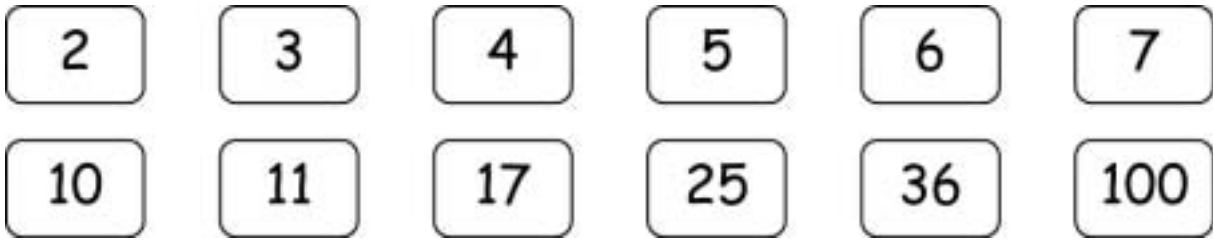
- 10 Here is a bill.
Some of the amounts are missing.

Work out the missing amounts.

| ASCO SUPERMARKET | | | | £ |
|------------------|-----------------|---|----------------|---------------------|
| 5 kg | potatoes | @ | _____ p per kg | 2·35 |
| 4 tins | baked beans | @ | 32p each | 1·28 |
| 1·5 kg | onions | @ | _____ p per kg | 0·57 |
| 2 | loaves of bread | @ | _____ p each | _____ |
| _____ kg | stewing steak | @ | 445p per kg | 11·57 |
| Total | | | | <u>18·11</u> |

[5]

11 Here are 12 number cards.



(a) Which four of these numbers are factors of 50?

_____ [2]

(b) Which one of these numbers is a multiple of 9?

(b) _____ [1]

(c) Gina turns the cards face down and shuffles them. She picks one of these cards at random.

Write down the probability that the card shows

(i) 2,

(c)(i) _____ [1]

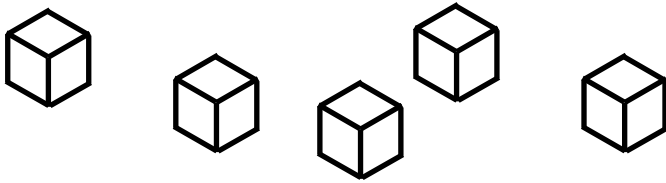
(ii) a square number,

(ii) _____ [2]

(iii) a prime number.

(ii) _____ [2]

- 12 *Linky Cubes* make small cubes.
They pack them into boxes.



- (a) This rule is used to work out how many boxes they need for each order.

divide the number of cubes by 575

Use the rule to work out the number of boxes needed for

- (i) 3450 cubes,

(a)(i) _____ [1]

- (ii) 9000 cubes.

(ii) _____ [2]

- (b) This formula is used to work out the cost, £ C , for n cubes.

$$C = 0.125n + 15$$

- (i) Work out the cost of 1400 cubes.


(b)(i) £ _____ [2]

- (ii) Mr White has £160 to spend on cubes.

How many cubes can he buy?

(ii) _____ [3]

13 Here are the ingredients to make 18 profiteroles.

| | |
|--|--|
| <p><u>Profiteroles</u> (makes 18)</p> |  |
| <p>250ml water 100g butter 125g plain flour 3 large eggs</p> | |
| <p>For the filling use 300ml of double cream</p> | |

(a) How much butter is needed for 9 profiteroles?

(a) _____ g [1]

(b) There are 24 students in Josie's class.
Josie wants to make enough profiteroles to give 3 to each student.

(i) Complete this list of ingredients for her.

Profiteroles

makes _____

_____ ml water

_____ g butter

_____ g plain flour

_____ large eggs

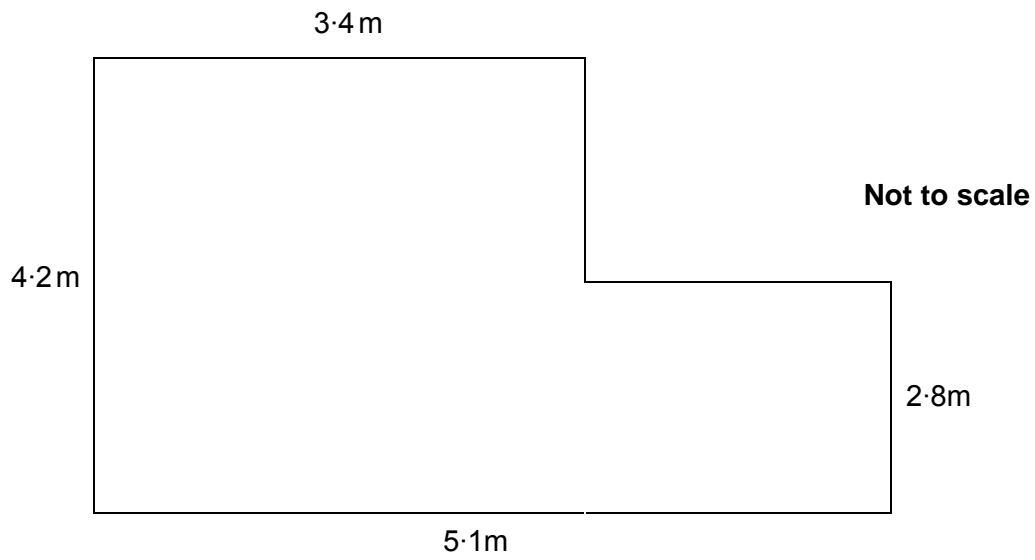
[4]

(ii) Josie has one litre of double cream for the filling.

Is this enough double cream?
Show how you decide.

[2]

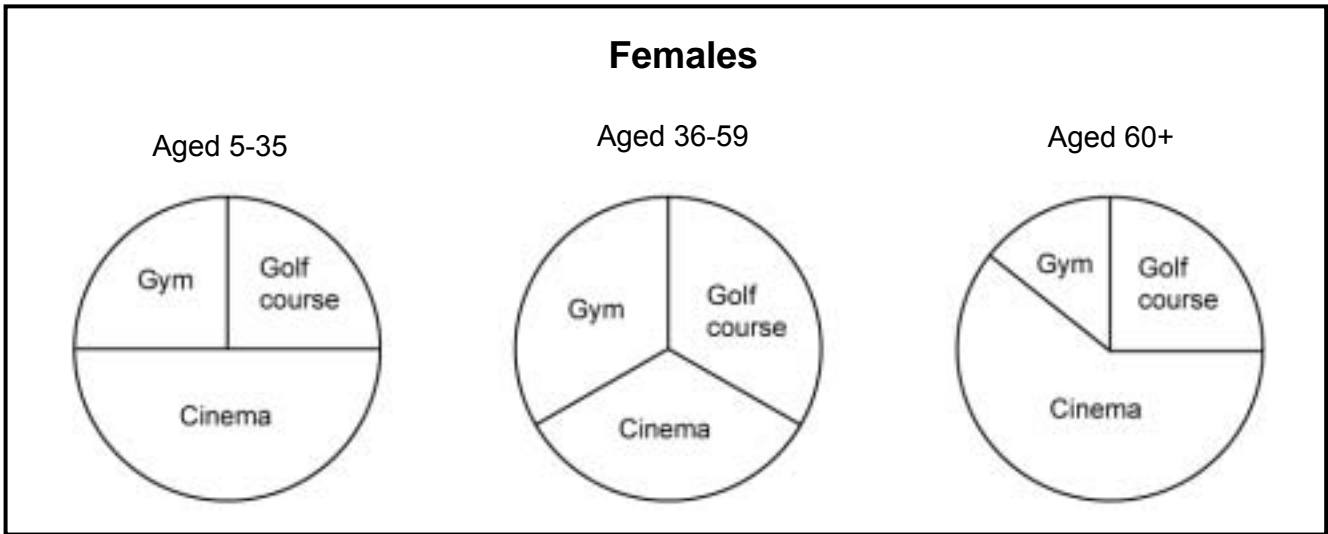
14 Calculate the area of this shape.



_____ m² [4]

15 A town council does a survey to see which of the following leisure facilities is wanted the most. Here are the results.

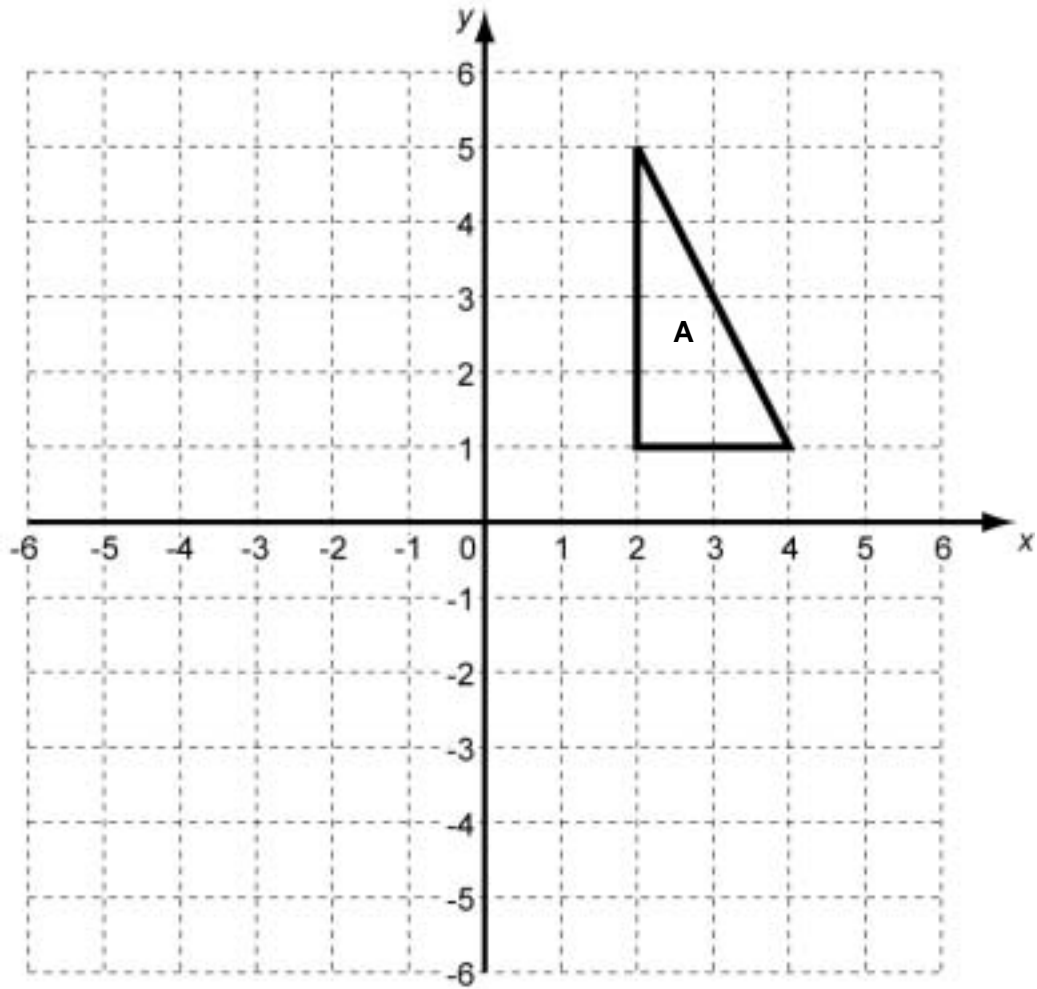
| Males | Golf course | Cinema | Gym |
|--------------|-------------|--------|-----|
| Aged 5-35 | 8% | 18% | 74% |
| Aged 36-59 | 58% | 28% | 14% |
| Aged 60+ | 32% | 43% | 25% |



Make three comments comparing the views of the males and the females.

[3]

16



- (a) Rotate triangle **A** through 90° anticlockwise about the point $(2, 0)$.
Label the image **B**.

[3]

- (b) Is **B** congruent to **A**? Explain your answer.

Write Yes
or No.

_____ because _____

_____ [1]

- 17 Kie measured the speeds of 20 cars that went along a country lane during one hour. Here are his results, in miles per hour.

23 27 41 44 56 48 25 30 36 52
 28 31 40 42 35 51 52 32 53 37

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

Key: 2 | 9 represents 29 miles per hour



[3]

- (b) Find the range of these speeds.

(b) _____ miles per hour [1]

- (c) Find the median of these speeds.

(c) _____ miles per hour [2]

- 18 (a)** At birth, a young whale has a length of 6.1 m.
The young whale grows 3 cm in length per day.

At this rate, what will be the length of this young whale after 6 months?

(a) _____ m [3]

- (b)** An adult whale is 14 m long, correct to the nearest metre.

What is the least the length of this whale can be?

(b) _____ m [1]

- (c)** There is a population of Southern Right Whales off the coast of South Africa.
The size of this population was about 5100 in the year 2009.
The number of these whales is increasing at about 7% every year.

Calculate the size of this population of whales in 2010.

(c) _____ [3]

19 (a) Haroon's cup contains 30 ml of milk and 225 ml of tea.

Write the ratio of milk to tea in its lowest terms.

(a) _____ [2]

(b) A café serves drinks in two sizes of cup.

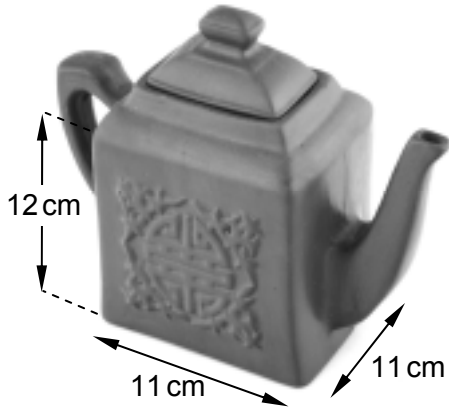
The ratio of the amounts of drink in a large cup to a regular cup is 3 : 2.

The regular cup contains 240 ml.

How much does the large cup contain?

(b) _____ m [2]

- (c)* Jean's teapot is in the shape of a cuboid (ignoring the spout, the handle and the lid). Its internal measurements are 11 cm by 11 cm by 12 cm. It is full of tea. The mugs she has are cylinders, of internal radius 3.5 cm and height 8.4 cm.



Is there enough tea in the pot to fill 4 of these mugs to just 1 cm away from the top?

[5]

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Q 19(c) Image of a teapot © www.iStockphoto.com

Q 19(c) Images of mugs © www.iStockphoto.com

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