

GCSE Mathematics

Practice Tests: Set 15

Paper 1F (Non-calculator)

Time: 1 hour 30 minutes

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

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 not be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

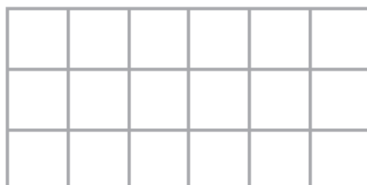
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Here is a shape made of squares.



Shade $\frac{1}{6}$ of the shape.

(Total for Question 1 is 1 mark)

2 Write 0.03 as a fraction.

.....
(Total for Question 2 is 1 mark)

3 Simplify $4 \times a \times 2$

.....
(Total for Question 3 is 1 mark)

4 Write 85% as a decimal.

.....
(Total for Question 4 is 1 mark)

5 Simplify $w + w + w + w - w$

.....
(Total for Question 5 is 1 mark)

6 Find which is larger

32% of 450

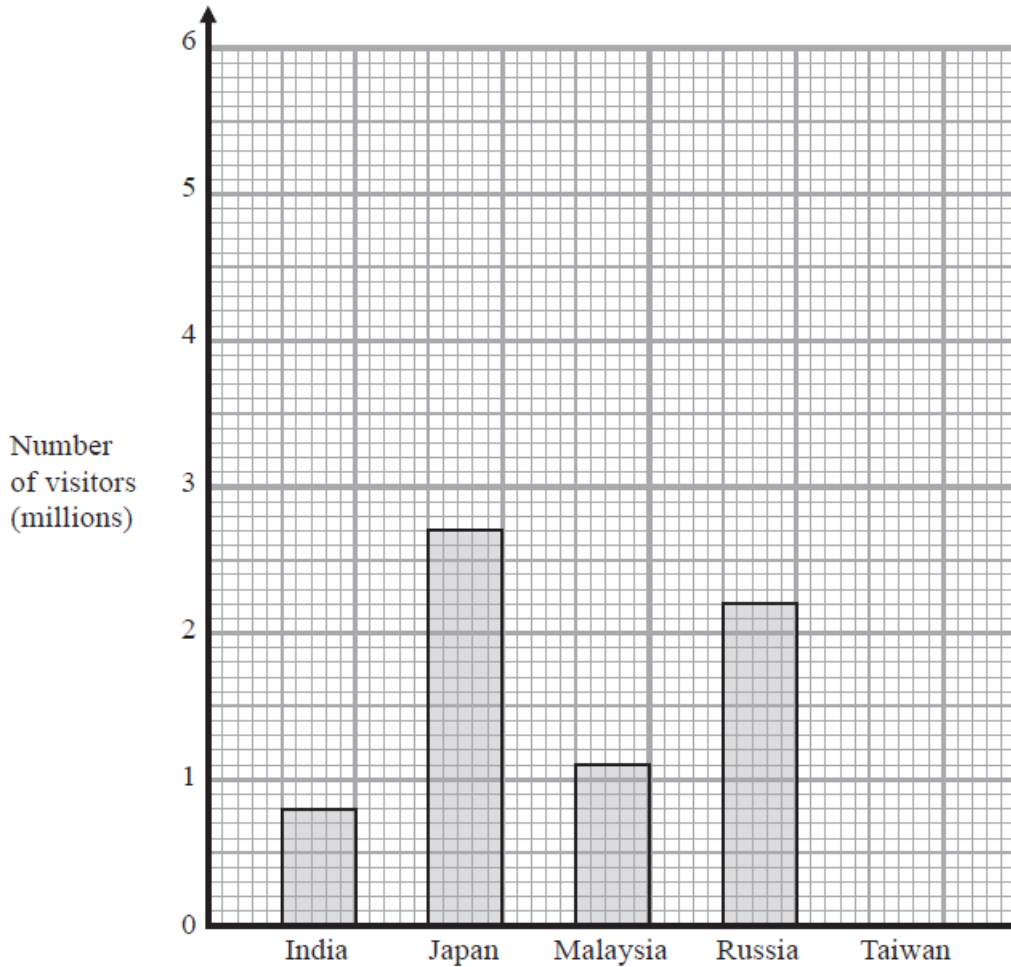
or

$\frac{2}{5}$ of 375

You must show all your working.

.....
(Total for Question 6 is 3 marks)

- 7 The bar chart shows information about the number of visitors to China from each of four countries in 2015



- (a) Write down the number of visitors from Japan.

..... million
(1)

- (b) From which country were there 1.1 million visitors?

.....
(1)

The number of visitors from Taiwan was 5.4 million.

- (c) Draw a bar on the bar chart to show this information.

(1)

The number of visitors from one country was twice the number of visitors from Malaysia.

- (d) Write down the name of this country.

.....
(1)

(Total for Question 7 is 4 marks)

8 Show that $\frac{5}{12} + \frac{3}{8} = \frac{19}{24}$

(Total for Question 8 is 2 marks)

9 (a) Change $\frac{19}{5}$ into a mixed number.

.....
(1)

$\frac{7}{11}$ of a class walk to school.

(b) What fraction of the class do **not** walk to school?

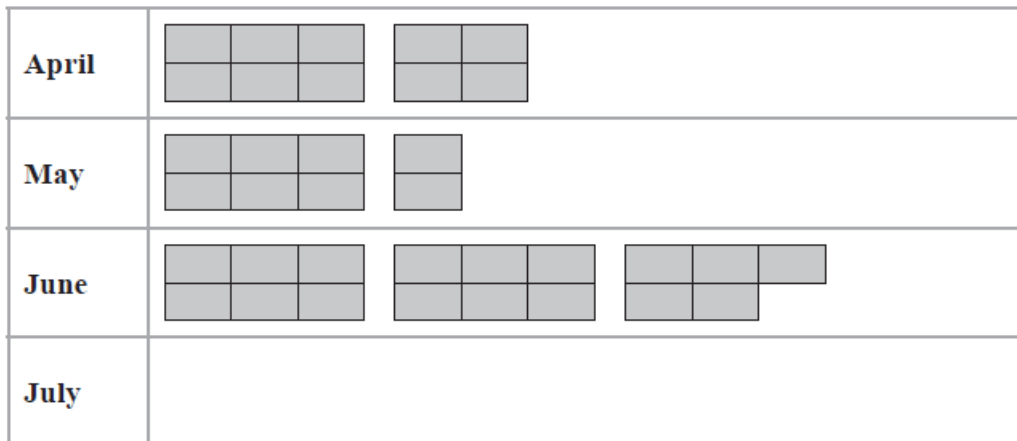
.....
(1)


(Total for Question 9 is 2 marks)

10 Work out $16 \div 4 + 3 \times 8$

.....
(Total for Question 10 is 1 mark)

- 11 The pictogram gives information about the number of eggs laid by Ellie's chickens in April, in May and in June.



 represents 24 eggs

- (a) How many eggs were laid by Ellie's chickens in April?

.....
(1)

Ellie's chickens laid more eggs in June than in May.

- (b) How many more?

.....
(2)

Ellie's chickens laid 52 eggs in July.

- (c) Show this information on the pictogram.

(1)

(Total for Question 11 is 4 marks)

12 (a) Expand $4(m + 2)$

.....
(1)

(b) Solve $2x + 5 = -19$

$x =$
(2)

(Total for Question 12 is 3 marks)

13 (a) Simplify $f \times f \times f \times f \times f$

.....
(1)

(b) Simplify $4c + 4h + 5c - 6h$

.....
(2)

(c) Factorise $10d + 15$

.....
(1)

(Total for Question 13 is 4 marks)

14 There are 12 beads in a bag.

6 of the beads are green

4 of the beads are blue

2 of the beads are pink

Peter takes at random a bead from the bag.

(a) Circle the word in the list below that best describes the likelihood that the bead is green.

impossible

unlikely

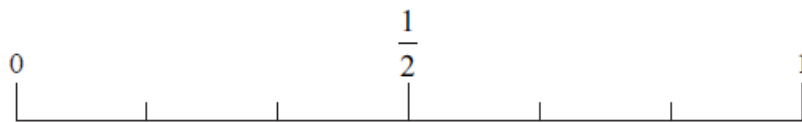
evens

likely

certain

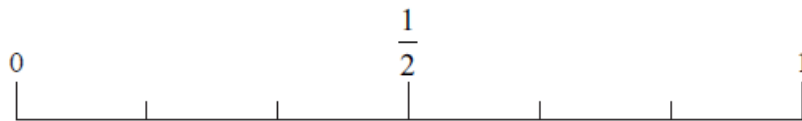
(1)

(b) On the probability scale, mark with a cross (×) the probability that the bead is orange.



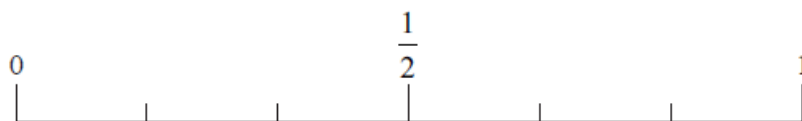
(1)

(c) On the probability scale, mark with a cross (×) the probability that the bead is blue.



(1)

(d) On the probability scale, mark with a cross (×) the probability that the bead is green or pink.



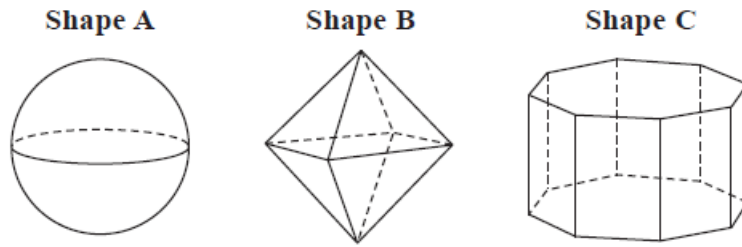
(1)

(Total for Question 4 is 4 marks)

15 Write down a fraction that is equivalent to $\frac{7}{9}$

.....
(Total for Question 15 is 1 mark)

16 The diagram shows some 3-D shapes.



(a) What is the mathematical name of shape A?

.....
(1)

(b) How many edges has shape B?

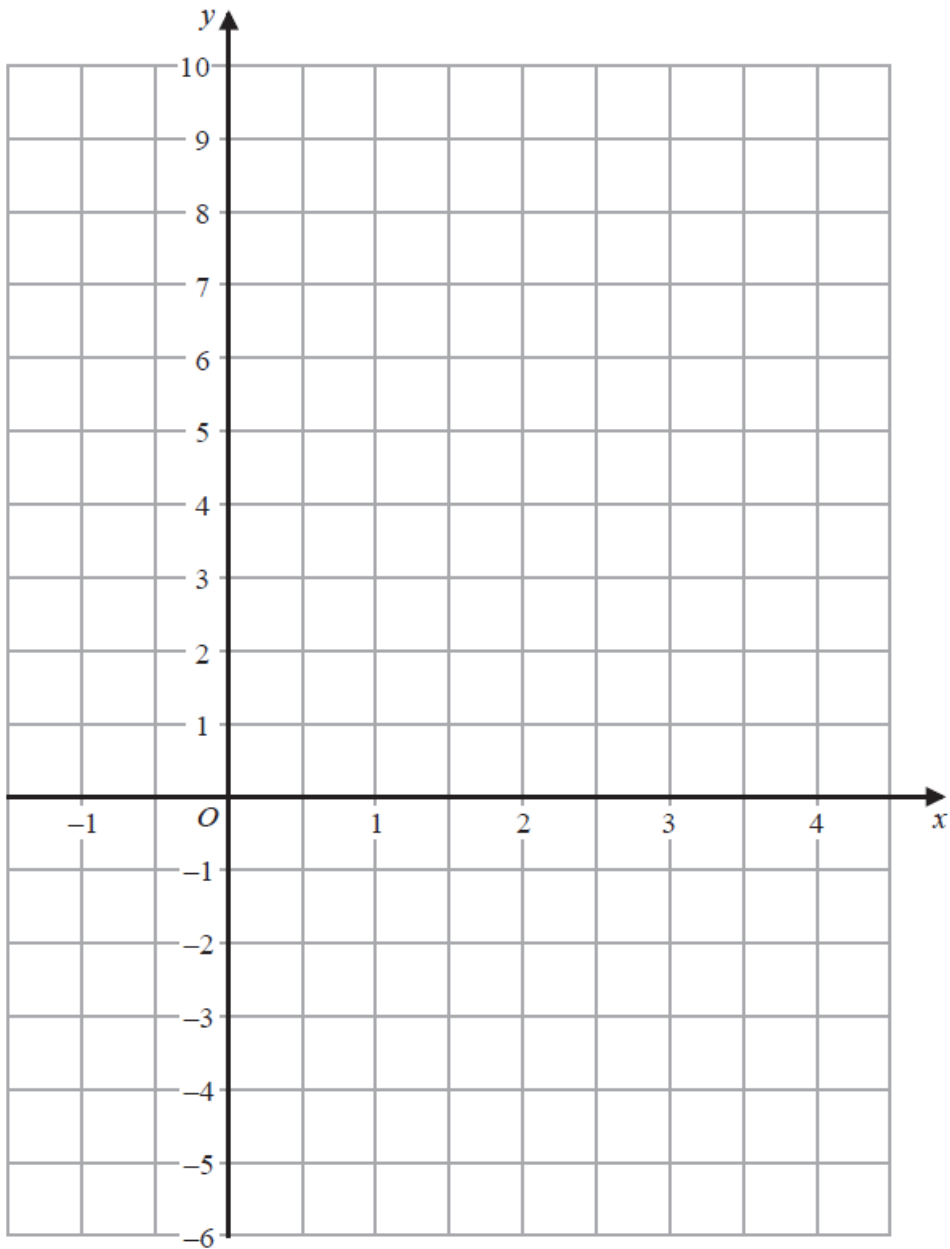
.....
(1)

(c) How many faces has shape C?

.....
(1)

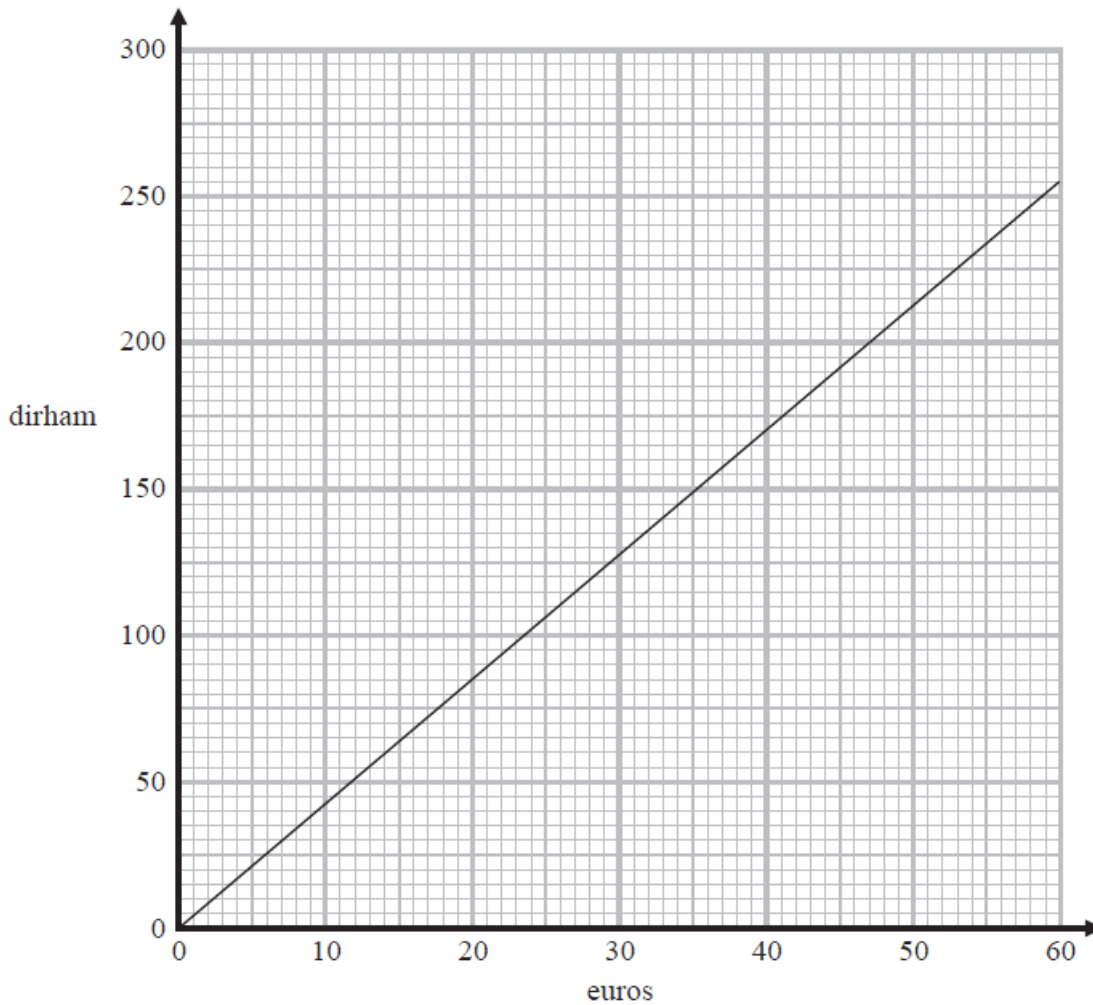
(Total for Question 16 is 3 marks)

17 On the grid, draw the graph of $y = 3x - 2$ for values of x from -1 to 4



(Total for Question 17 is 3 marks)

18 The graph below can be used to change between euros and dirham.



(a) Use the graph to change 200 dirham to euros.

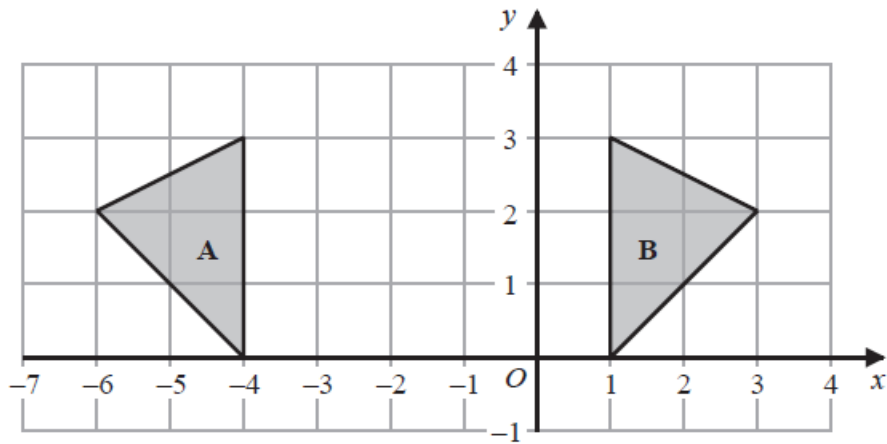
..... euros
(1)

The price of a jacket is 90 euros in France and 400 dirham in the United Arab Emirates.

(b) In which of these countries is the jacket cheaper?
You must show your working.

.....
(2)

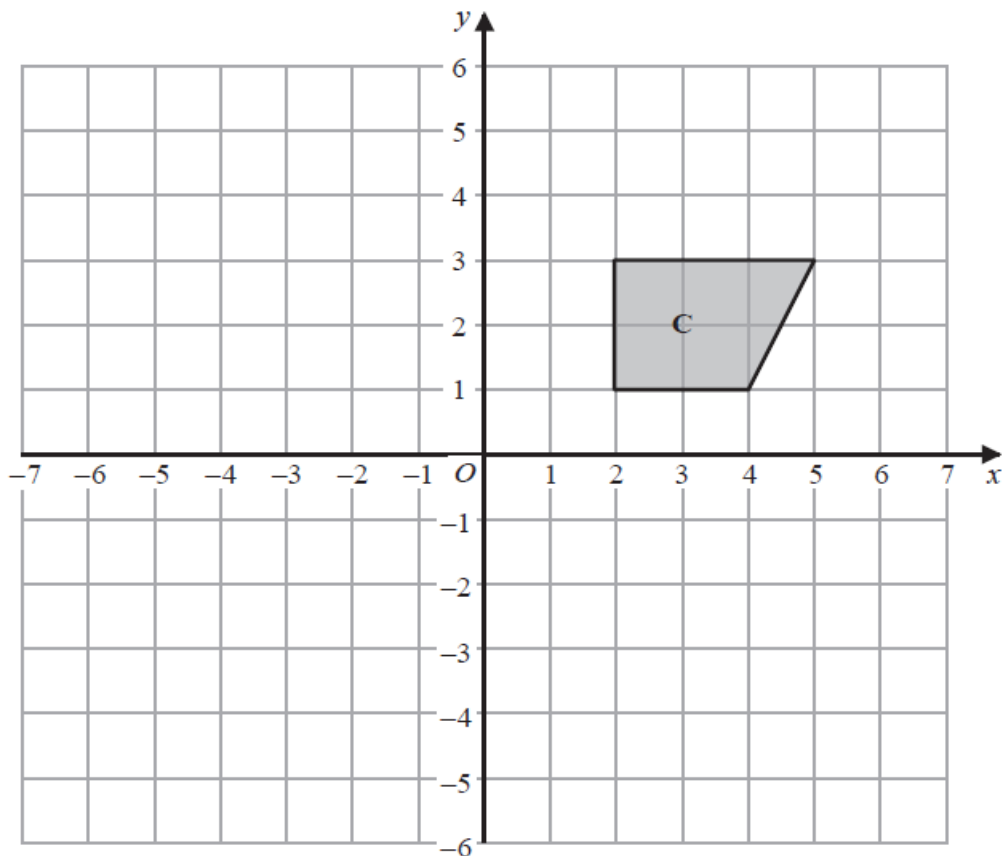
(Total for Question 18 is 3 marks)



On the grid above, triangle **A** is the reflection of triangle **B** in the mirror line **M**.

- (a) On the grid, draw the mirror line **M**.
Label the line **M**.

(1)

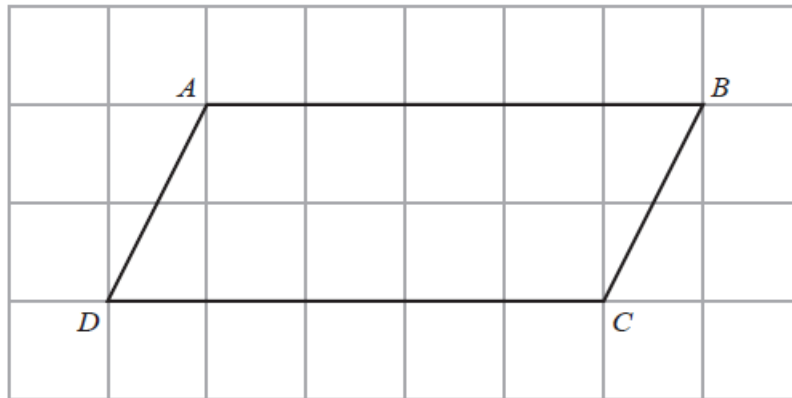


- (b) On the grid above, rotate the shaded shape **C** 90° anticlockwise about the point with coordinates $(0, 0)$

(2)

(Total for Question 19 is 3 marks)

20 The diagram shows a quadrilateral $ABCD$ drawn on a square grid.



(a) Measure the length of BC .

..... cm
(1)

(b) Write down the mathematical name of quadrilateral $ABCD$.

.....
(1)

(c) Write down the order of rotational symmetry of quadrilateral $ABCD$.

.....
(1)

(d) On the diagram, mark an obtuse angle with the letter x .

(1)

(Total for Question 20 is 4 marks)

21 Show that $3\frac{3}{4} \times \frac{7}{9} = 2\frac{11}{12}$

(Total for Question 21 is 3 marks)

22 $G = c^2 - 4c$

Find the value of G when $c = -5$

$G = \dots\dots\dots$

(Total for Question 22 is 2 marks)

23 The diagram shows a square and an isosceles triangle.

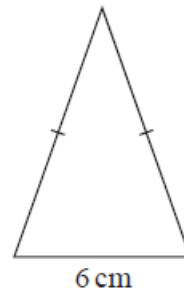
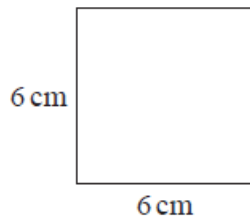


Diagram **NOT** accurately drawn

The square has sides of length 6 cm.
The base of the isosceles triangle is 6 cm.

The perimeter of the square is equal to the perimeter of the isosceles triangle.

The shaded shape is made by putting three of the isosceles triangles around the square as shown in the diagram below.

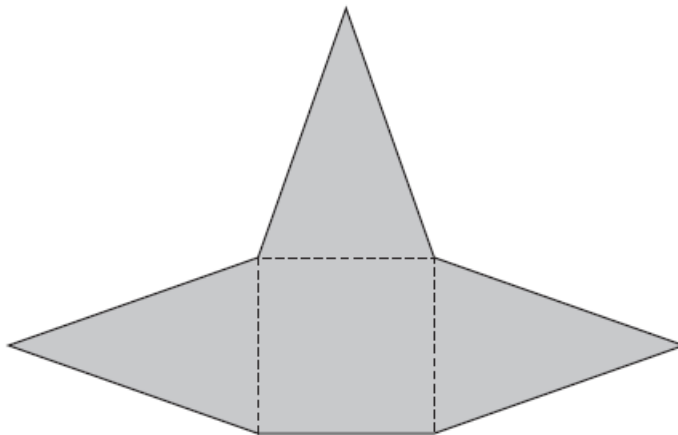


Diagram **NOT** accurately drawn

Work out the perimeter of the shaded shape.
Show your working clearly.

..... cm

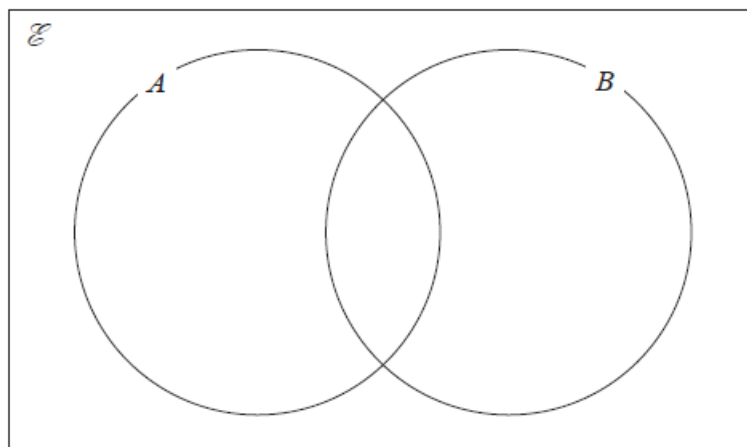
(Total for Question 23 is 4 marks)

24 $\mathcal{E} = \{\text{whole numbers from 1 to 15}\}$

$A = \{\text{even numbers}\}$

$B = \{3, 6, 9, 12, 15\}$

Complete the Venn diagram for the sets \mathcal{E} , A and B .



(Total for Question 24 is 3 marks)

25 Make t the subject of $e = 7t + g$

.....
(Total for Question 25 is 2 marks)

26 Given that $150^x = 1$

(a) write down the value of x .

$x = \dots\dots\dots$
(1)

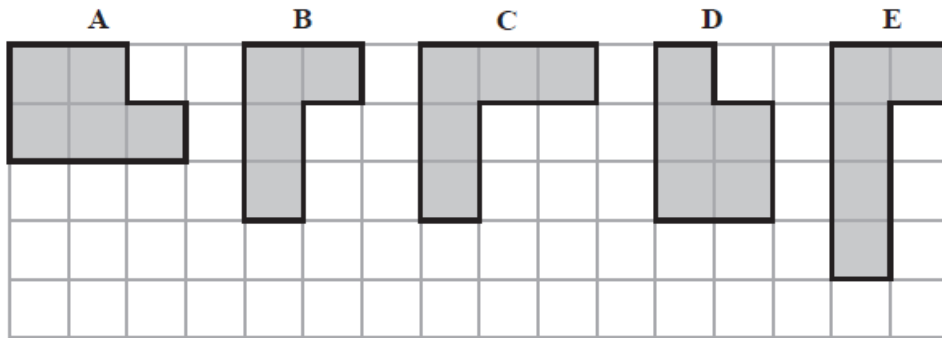
Given that $3^{-8} \div 3^{-6} = 3n$

(b) find the value of n .

$n = \dots\dots\dots$
(1)

(Total for Question 26 is 2 marks)

27 The diagram shows five shaded shapes on a grid of squares.



Two of the shapes are congruent.

(a) Write down the letters of these shapes.

..... and

(1)

(b) On the square grid below, draw a shape that is similar to but is **not** congruent to shape **B**.



(2)

(Total for Question 27 is 3 marks)

28 Solve $\frac{5x-3}{4} = 2x+3$

Show clear algebraic working.

$x = \dots\dots\dots$

(Total for Question 28 is 3 marks)

29 (a) Factorise $x^2 - x - 42$

$\dots\dots\dots$
(2)

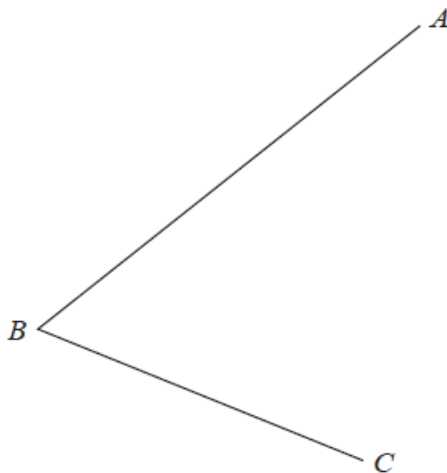
(b) Solve the inequality $3x + 15 < 8x + 3$

Show clear algebraic working.

$\dots\dots\dots$
(3)

(Total for Question 29 is 5 marks)

- 30** Using ruler and compasses only, construct the bisector of angle ABC .
You must show all your construction lines.



(Total for Question 30 is 2 marks)

- 31** Find the gradient of the straight line with equation $5x + 2y = 7$

.....
(Total for Question 31 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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