

SECONDARY SCHOOL ANNUAL EXAMINATIONS - 2008
DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Educational Assessment Unit



FORM 2

MATHEMATICS – Scheme A

TIME: 45 minutes

(NON-CALCULATOR PAPER)

| | | | | | | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|---|----|----|----|-------|
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
| Mark | | | | | | | | | | | | | |

DO NOT WRITE ABOVE THIS LINE

Name: _____

Class: _____

INSTRUCTIONS TO CANDIDATES

- **Answer ALL questions.**
 - **This paper carries a total of 40 marks.**
 - **Calculators and protractors are NOT ALLOWED.**
-

1 Work out the following:

a) $321 + 184 =$ _____

b) $561 - 287 =$ _____

c) $23 - 42 =$ _____

(3 marks)

2 Evaluate the following:

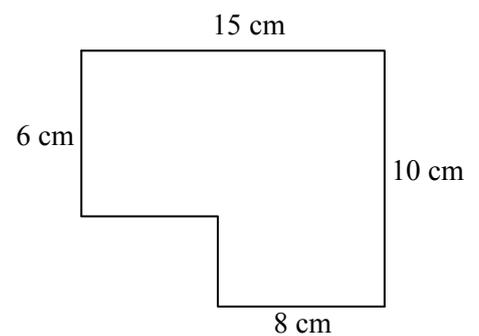
a) $78 \times 8 =$ _____

b) $161 \div 7 =$ _____

(4 marks)

3 Calculate the perimeter and area of the shape shown.
The diagram is **not** to scale.

a) Perimeter:



_____ cm

b) Area:

_____ cm²

(4 marks)

4 Calculate:

a) 50% of 50

b) 30% of 175

(4 marks)

5 a) If $z = 2x + 3y - xy$, find the value of z when $x = 4$ and $y = 5$.

$z =$ _____

b) Solve the equation: $5p - 4 = 2p + 8$.

$p =$ _____

(3 marks)

6 a) What is the HCF of: 60 and 72?

HCF = _____

b) What is the LCM of: 3, 4 and 6?

LCM = _____

(4 marks)

7 Rearrange in ascending order (smallest first):

$\frac{2}{3}, \frac{1}{2}, \frac{3}{4}, \frac{4}{3}, \frac{1}{6}$

_____ ; _____ ; _____ ; _____ ; _____
(2 marks)

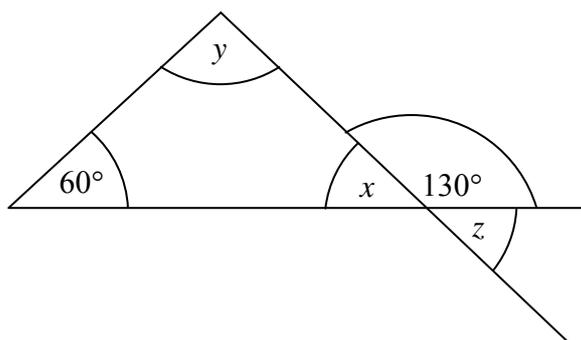
8 Evaluate, giving your answer in its simplest form.

a) $\frac{1}{3} + \frac{1}{2} - \frac{1}{6} =$

b) $\left(\frac{3}{4} - \frac{1}{3}\right) \div \frac{5}{6} =$

(4 marks)

9 In the triangle shown below, calculate the value of the angles marked x, y and z.



$x =$ _____ $^\circ$

$y =$ _____ $^\circ$

$z =$ _____ $^\circ$

(3 marks)

10 Work out an estimate for: $\frac{78.4 \times 2.3}{2.12 \times 18.7}$

(2 marks)

11 The following are the marks obtained by some students for their Physics homework:

| | | | | |
|---|---|---|---|---|
| 9 | 8 | 7 | 3 | 5 |
| 6 | 7 | 6 | 5 | 6 |
| 5 | 8 | 4 | 6 | 3 |

a) Fill in the frequency table:

| | | | | | | | |
|-----------------|---|---|---|---|---|---|---|
| Mark | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| No. of students | | | | | | | |

b) What is the median mark?

(4 marks)

12 Factorise:

a) $5x - 30$

b) $7y - 21z + 56$

(3 marks)

END OF PAPER

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FORM 2 MATHEMATICS – SCHEME A (Main Paper) Time: 1h 15min

| | | | | | | | | | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|---|----|----|----|----|------------|----------------|--------------------|
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Total Main | Non Calculator | Global Mark |
| Mark | | | | | | | | | | | | | | | | |

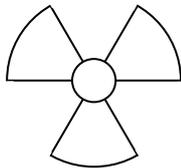
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Name: _____

Class: _____

- Answer all questions.
- This paper carries 60 marks.
- Calculators and mathematical instruments are allowed but all necessary working must be shown.

1 What is the order of rotational symmetry, about the centre, of this diagram?



_____ (1 mark)

2 Evaluate :

$$\sqrt{22.09 \times 38.7 \div 4.3}$$

_____ (2 marks)

3 Divide €230 among John, Peter and Mary in the ratio 2 : 3 : 4.

John: € _____

Peter: € _____

Mary: € _____

(4 marks)

4 Write down the next 2 terms in the following sequences:

a) - 4 ; - 1 ; 2 ; 5 ; _____ ; _____

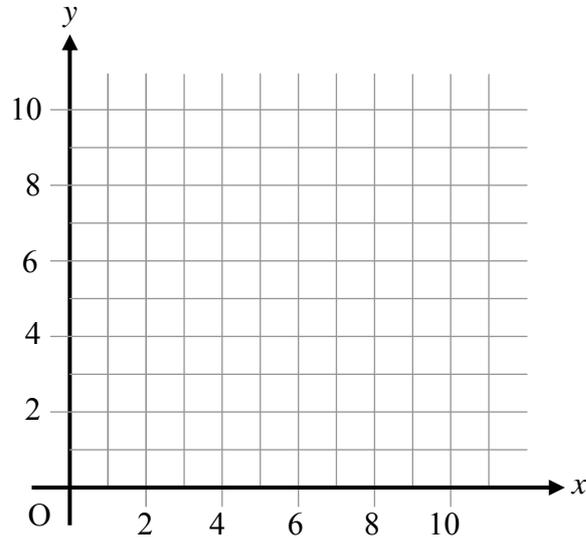
b) $\frac{1}{2}$; $\frac{2}{3}$; $\frac{3}{4}$; $\frac{4}{5}$; _____ ; _____.

(4 marks)

5 On the grid below:

a) Plot the points A (1, 0); B (1, 8); C (3, 8); and D (3, 0).
Join A to B, B to C, C to D and D to A.

b) Rotate the rectangle ABCD 90° clockwise about point D. Mark clearly points A', B', C'.



(6 marks)

6 a) Complete the table for $y = 4x - 6$.

| | | | | | |
|------|------|-----|-----|---|-----|
| x | - 2 | - 1 | 0 | 2 | 4 |
| $4x$ | - 8 | | | 8 | |
| - 6 | - 6 | | - 6 | | - 6 |
| y | - 14 | | | | 10 |

Use your table to draw the graph of $y = 4x - 6$. Take 2 cm to represent 1 unit on the x axis and 2 cm to represent 2 units on the y axis.

b) From your graph find:

i) the value of x when $y = 6$.

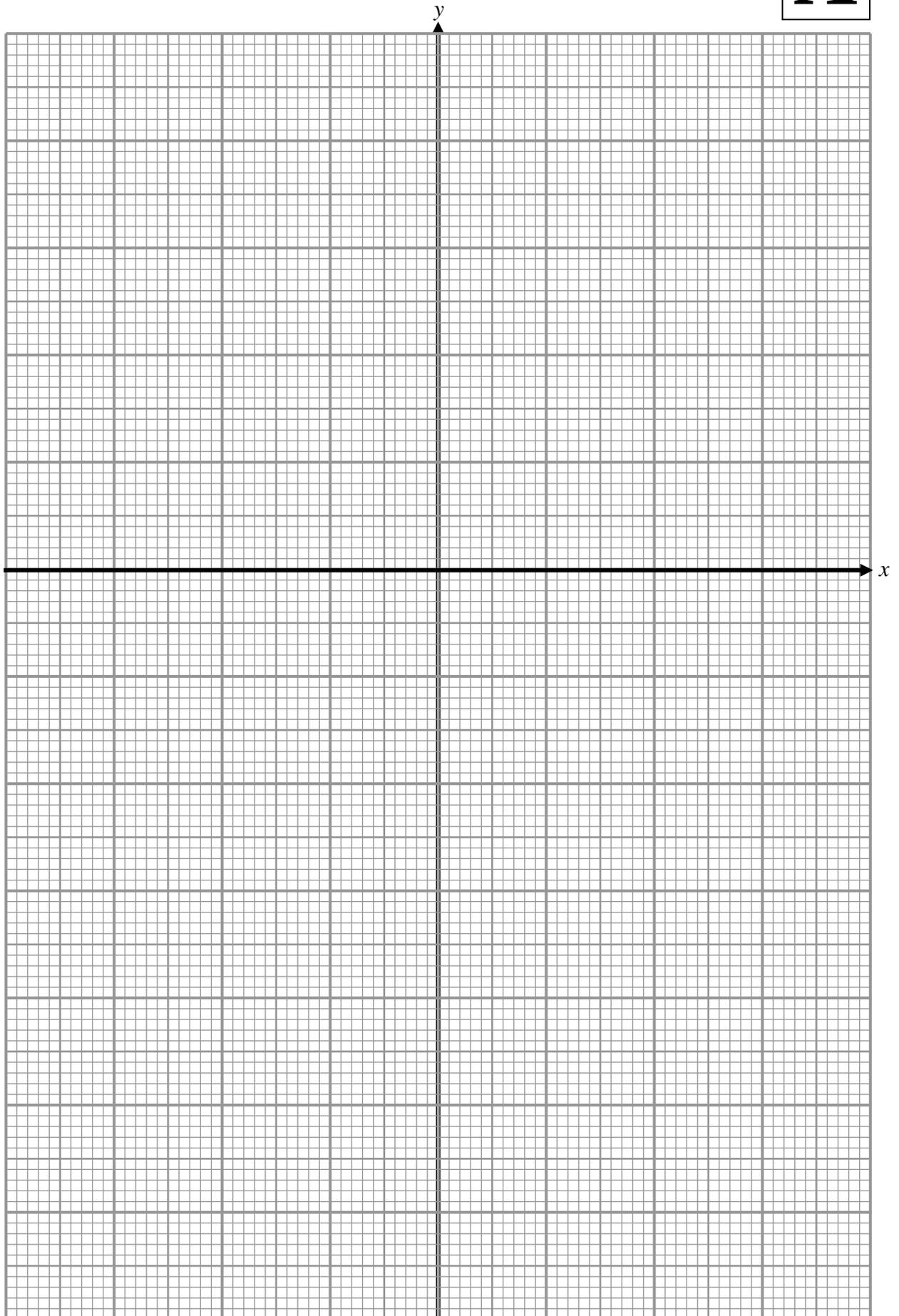
$x =$ _____

ii) the gradient of the graph.

gradient = _____
(8 marks)

Name: _____

Class: _____



7 Tom and Ann decide to play a game. They each toss a coin. Tom wins with 2 Heads or 2 Tails; otherwise Ann wins.

a) Fill in the table to show all the possible ways the coins can land.

| | | 1 st Toss | |
|----------------------|-------------|----------------------|-------------|
| | | Heads (H) | Tails (T) |
| 2 nd Toss | Heads (H) | | |
| | Tails (T) | | |

b) What is the probability that Tom wins?

(5 marks)

8 Tonia drew some triangles.

She measured the interior angles and entered the results in the spreadsheet shown below:

| | A | B | C | D | E |
|---|------------|------------|------------|------------|----------------------------------|
| 1 | | $\angle X$ | $\angle Y$ | $\angle Z$ | $\angle X + \angle Y + \angle Z$ |
| 2 | Triangle 1 | 90 | 30 | 60 | 180 |
| 3 | Triangle 2 | 85 | 50 | 45 | |
| 4 | Triangle 3 | 80 | 72 | | 180 |
| 5 | Triangle 4 | 100 | | | |

a) What **formula** did Tonia type in cell E2?

= _____

b) What number should there be in cell D4?

c) Triangle 4 is an **isosceles** triangle. What is the size of $\angle Z$?

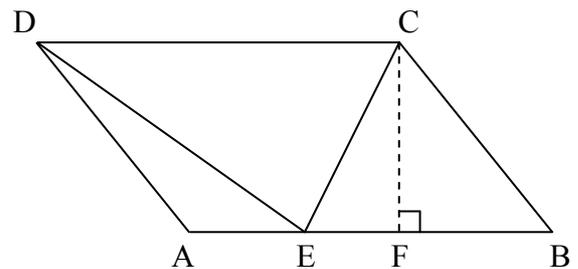
$\angle Z =$ _____^o
(4 marks)

- 9 a) I think of a number and multiply it by 7.
Then I subtract 14.
The result is 77.
What is the number I started with?

- b) Solve the equation: $3(p + 3) + 2(p - 1) = 32$

$p =$ _____
(4 marks)

- 10 The diagram shows a parallelogram ABCD in which $AE = 5$ cm and $EB = 10$ cm. CF is perpendicular to AB.



- a) Write an expression for the area of $\triangle ADE$ in terms of AE and CF .

Area = _____

- b) The area of $\triangle ADE$ is 20 cm^2 .
Calculate the length of CF .

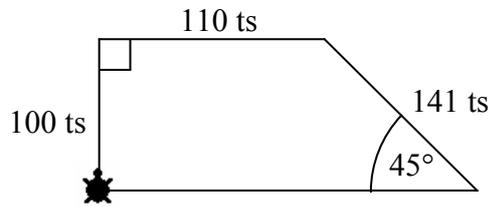
$CF =$ _____ cm

- c) Show that the area of $\triangle CEB$ is 40 cm^2 .

- d) Show that the area of $\triangle DEC =$ area of $\triangle ADE +$ area of $\triangle CEB$.

(7 marks)

- 11 Alfred wanted to draw the trapezium shown using Logo. He wrote the commands but left out some information. Fill in the blanks.



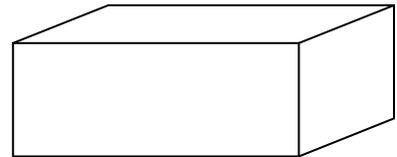
PD FD 100 _____ 90 FD 110 RT _____ FD _____ RT 135 FD _____

(5 marks)

- 12 The diagram represents the fuel tank of a truck. The tank has the shape of a cuboid 120 cm long, 50 cm wide, 45 cm high.

a) Calculate the volume of the tank:

i) in cm^3



_____ cm^3

ii) in litres (1 litre = 1000 cm^3)

_____ l

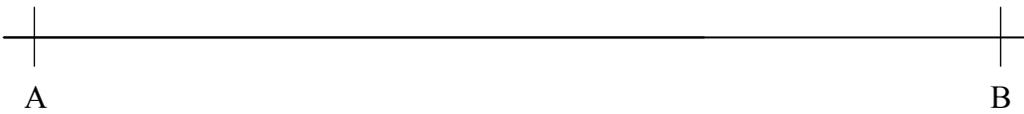
- b) The truck covers 7.71 km on 1 litre of fuel. How far will the truck run on a full tank? Give your answer correct to the nearest km.

_____ km

(6 marks)

13 Use ruler and compasses **only** to construct a line through C that is perpendicular to the line AB.

× C



(4 marks)

END OF PAPER

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