



## EXAMINATIONS COUNCIL OF ZAMBIA

### JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) – 2011

# MATHEMATICS 401/1

## PAPER 1

(INTERNAL AND EXTERNAL CANDIDATES)

TIME: 2 HOURS

MARKS: 50

NO READING TIME

### INSTRUCTIONS TO CANDIDATES

1. Pull out the Answer Sheet from the question paper.
2. Write your name, examination number and school/centre on the Answer Sheet.

This paper consists of Sections A and B only. There are thirty (30) questions in this paper.

**Section A:** Answer **all** questions. Write the letter of the answer by marking a cross (X) on the Answer Sheet provided.  
Question 1 – 10: 1 mark each.

**Section B:** Answer **all** questions. Write the answers in the spaces provided on the Answer Sheet.  
Question 11 – 30: 2 marks each.

- Note:**
- 1 No paper for rough work is to be provided. Any working should be done on the question paper in the spaces provided.
  - 2 **Cell phones** and **calculators** are **not** allowed in the examination room.
  - 3 Only the Answer Sheet should be handed in.



EXAMINATIONS COUNCIL OF ZAMBIA  
ANSWER SHEET FOR GRADE 9 MATHEMATICS PAPER 1 – 2011

NAME: \_\_\_\_\_

EXAMINATION NUMBER: \_\_\_\_\_

SCHOOL/CENTRE: \_\_\_\_\_

TOTAL MARKS: \_\_\_\_\_

Section A

For each question, mark your choice with a cross (X)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 |   |   |   |   | 2 |   |   |   |   | 3 |   |   |   |   | 4 |   |   |   |   | 5 |   |   |   |   |
| A | B | C | D | E | A | B | C | D | E | A | B | C | D | E | A | B | C | D | E | A | B | C | D | E |

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|---|
| 6 |   |   |   |   | 7 |   |   |   |   | 8 |   |   |   |   | 9 |   |   |   |   | 10 |   |   |   |   |
| A | B | C | D | E | A | B | C | D | E | A | B | C | D | E | A | B | C | D | E | A  | B | C | D | E |

Section B

Write your answers in the spaces provided. Working must **NOT** be done on this paper.

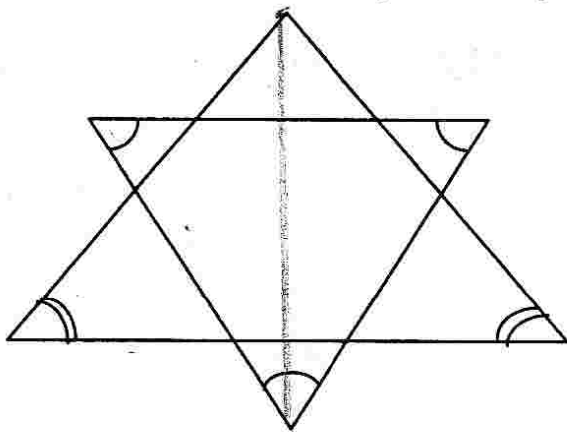
|             |             |
|-------------|-------------|
| 11          | 21          |
| 12          | 22          |
| 13          | 23 (a) (b)  |
| 14 (a) (b)  | 24          |
| 15 (i) (ii) | 25 (a) (b)  |
| 16          | 26          |
| 17          | 27 (i) (ii) |
| 18          | 28          |
| 19          | 29          |
| 20          | 30          |

**SECTION A [10 MARKS]**

1 Evaluate  $-2 - (-10)$ .

- A -20
- B -12
- C -8
- D 8
- E 12

2 State the number of lines of symmetry of the shape below.

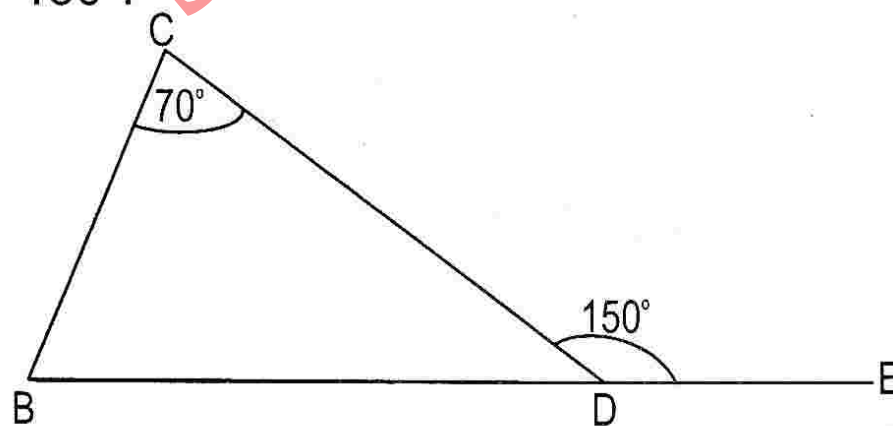


- A 1
- B 2
- C 3
- D 4
- E 6

3 From the word MATHEMATICAL, the modal letter is ...

- A M.
- B A.
- C T.
- D L.
- E H.

4 In the diagram below, BDE is a straight line, angle BCD =  $70^\circ$  and angle CDE =  $150^\circ$ .



Calculate angle CBD.

- A  $110^\circ$
- B  $100^\circ$
- C  $80^\circ$
- D  $70^\circ$
- E  $55^\circ$

- 5 In the expression  $2xy^3 + 5x^2 + 4y$ ,  $x$  and  $y$  are variables.

State the coefficient of  $y$ .

- A 1
- B 2
- C 3
- D 4
- E 5

- 6 Given that  $E = \{a, b, c, d, e, f, g, h, i, j, k\}$  and  $A = \{b, c, d, e, f, g, h\}$ , find  $n(A')$ .

- A 11
- B 7
- C 4
- D  $\{b, c, d, e, f, g, h\}$
- E  $\{a, i, j, k\}$

- 7 State the number of significant figures in 70.001.

- A 1
- B 2
- C 3
- D 4
- E 5

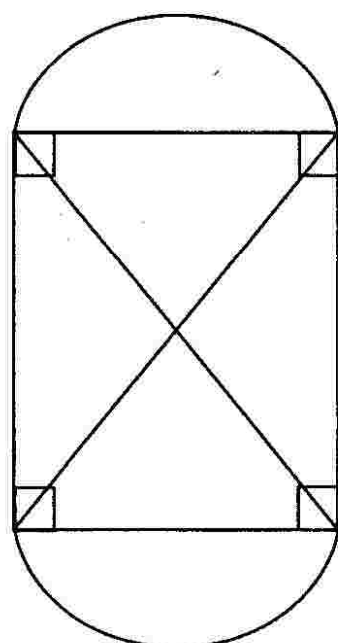
- 8 Write 35% as a fraction in its lowest terms.

- A  $\frac{7}{20}$
- B  $\frac{5}{20}$
- C  $\frac{7}{50}$
- D  $\frac{35}{50}$
- E  $\frac{35}{100}$

9 How many faces does a triangular pyramid have?

- A 2
- B 3
- C 4
- D 5
- E 6

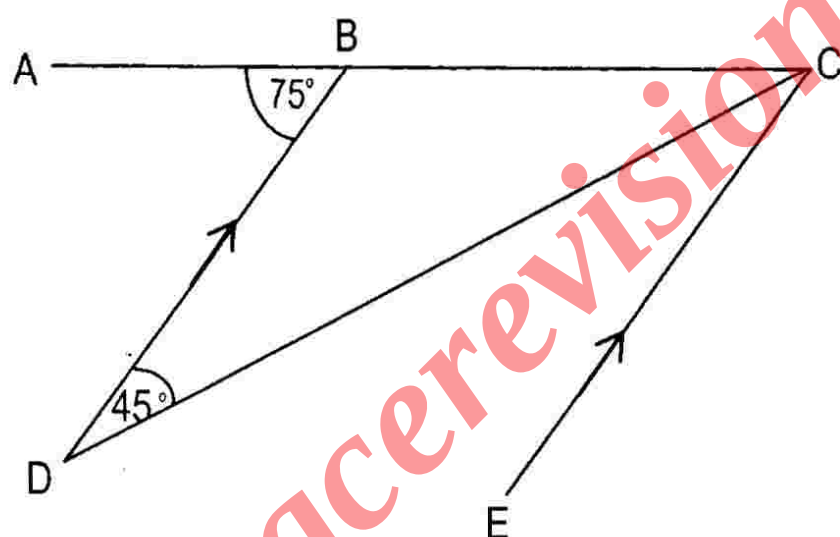
10 State the order of rotational symmetry for the figure below.



- A 8
- B 4
- C 2
- D 1
- E 0

**SECTION B [40 MARKS]**

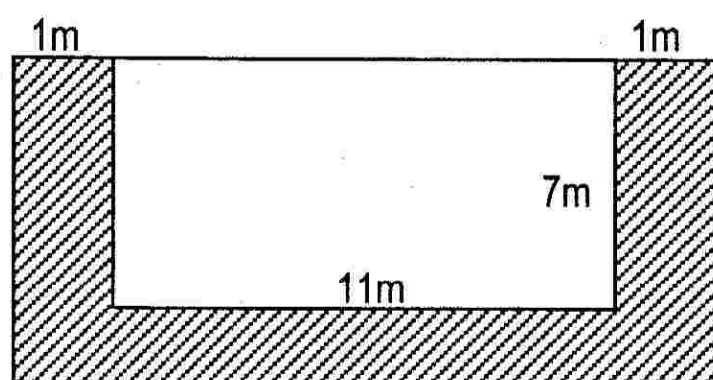
- 11 If  $G = \{a, b, c, d, e\}$ , how many subsets has set  $G$ ?
- 12 Simplify  $\frac{6k^2 - 24k}{6k}$ .
- 13 The average height of Nosiku, Naza, Twaambo and Natasha is 1.4m. If Natasha's height is 1.25m, what is the total height of the other three children?
- 14 (a) Mwansa got 16 marks out of 25 in a Mathematics test. What percentage did she get in this test?
- (b) Simplify  $5x + 2y - x - 2y$ .
- 15 In the diagram below,  $ABC$  is a straight line,  $BD$  is parallel to  $CE$ , angle  $ABD = 75^\circ$  and angle  $BDC = 45^\circ$ .



Find angle

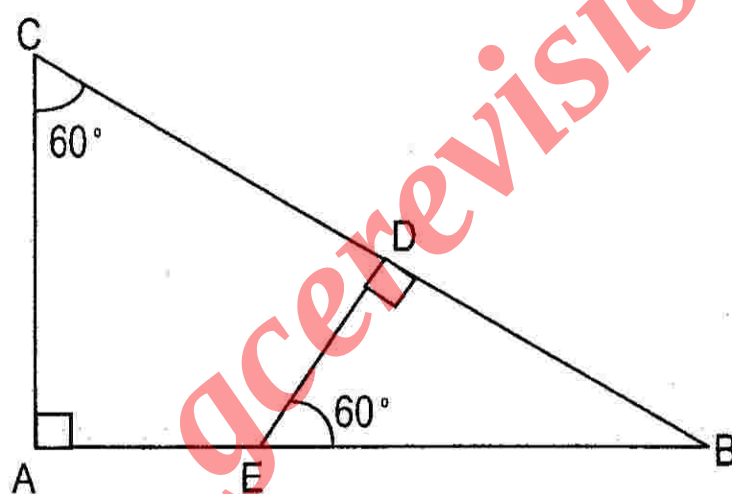
- (i)  $\angle DCE$ ,
- (ii)  $\angle BCD$ .
- 16 Express  $\frac{x+3}{3} - \frac{x}{5}$  as a single fraction in its simplest form.
- 17 Towela's average step is 35cm long and her mother's is 50cm. Towela takes 920 steps for a certain distance. How many steps would her mother take for the same distance?
- 18 The masses of 4 babies born on the same day were 3.1kg, 2.6kg, 3.3kg and 2.8kg. Calculate the average mass of the babies, giving your answer correct to the nearest kilogram.
- 19 If the operation  $y * x$  means  $y^2 - x$ , find the value of  $-3 * 2$ .

- 20 A newspaper vendor receives a commission of K150 for each newspaper he sells. Find the commission he received after selling 940 newspapers.
- 21 The diagram below shows a rectangular swimming pool partly surrounded by a lawn 1m wide. The shaded part represents the lawn. The length of the swimming pool is 11m and the breadth is 7m.



Find the perimeter of the lawn.

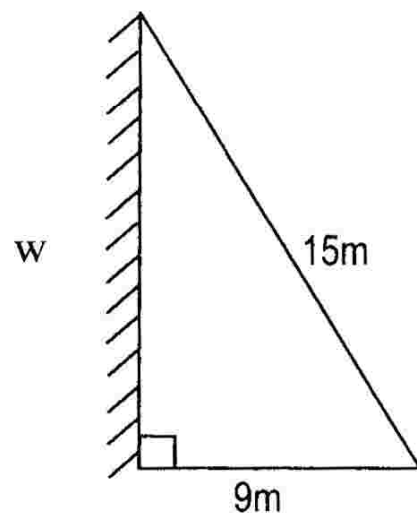
- 22 Solve the inequation  $15 < -4x + 3$ .
- 23 (a) The diagram below shows two similar triangles. Angle  $ACB = \text{angle } BED = 60^\circ$  and angle  $CAB = \text{angle } BDE = 90^\circ$ .



State the side that corresponds to BD.

- (b) Evaluate  $\frac{2}{5} + \frac{1}{4}$ .
- 24 Solve the equation  $3(x - 5) = 45$ .
- 25 (a) During a football match between Zambia and Cameroon, 78 620 people attended the match. Express the number of people in standard form.
- (b) A boxing match started at 20 35 hours and ended after 30 minutes. At what time did the match end?

- 26 The diagram below shows a ladder 15m long leaning against an upright wall of height  $w$  metres. The foot of the ladder is 9m away from the wall.



Find the height of the wall.

- 27 Mrs Chikho bought the following items from Shoprite:
- 10kg of beef at K12 000 per kg,
  - 15kg of sugar at K6 000 per kg,
  - 3 tins of water paint at K20 000 per tin.
- (i) Find the total bill for Mrs Chikho.
- (ii) If she was given 5% cash discount, how much did she pay for the items?
- 28 Convert 20m/s to km/h.
- 29 Mubita invested K1 480 000 for 5 years and received an interest of K296 000. What was the rate of interest?
- 30 Timothy has twice as many sweets as Monde. If Timothy has 36 sweets, find the ratio of Timothy's sweets to Monde's sweets in its lowest terms.