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EXAMINATIONS COUNCIL OF ZAMBIA
JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) – 2021

Mathematics 401/1
Paper 1

(INTERNAL 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 **examination number** and **school/centre name** and **code** on the **Answer Sheet**.
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- 3 There are **two** sections in this question paper, Section **A** and **B**.
- 4 Answer **all** the questions in both sections on the Answer Sheet provided.
- 5 In Section A, for each question, **four** suggested answers are given, **A, B, C** and **D**. Choose the correct answer and show it on the Answer Sheet by marking it with a cross (**X**).

For example, if the answer is D

A	B	C	☒ D
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- 6 No paper for rough work is to be provided. Any working should be done on the question paper in the spaces provided.
- 7 Only the **Answer Sheet** should be handed in.

Information for Candidates

- 1 In Section A, each correct answer will score one mark. In Section B, the number of marks is given in brackets [] at the end of each question or part question.
- 2 Cell phones and calculators are **not allowed** in the examination room.



ANSWER SHEET FOR GRADE 9 MATHEMATICS PAPER 1 – 2021

Examination Number:

School/Centre Name:

School/Centre Code:

Total Marks:

Section A

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

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

6				7				8				9				10			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D

Total Marks for Section A

Section B

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

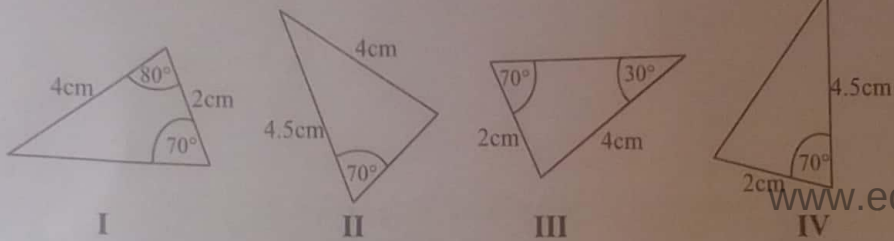
11	21
12	22
13	23
14	24
15	25 (i) (ii)
16	26
17 (i) (ii)	27
18	28
19	29
20	30

Total Marks for Section B

SECTION A [10 MARKS]

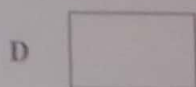
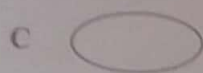
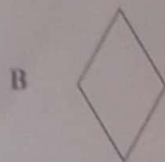
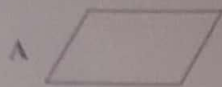
- 1 Find the value of $(-3) - (-2)$.
- A -5
B -1
C 1
D 6
- 2 Round off 278.785 to the nearest hundredth.
- A 278.79
B 278.80
C 279.00
D 280.00

- 3 Which two triangles below are congruent?



- A I and IV
B I and III
C II and III
D II and IV
- 4 Evaluate $3^4 - 2^3$.
- A 4
B 6
C 73
D 75

- 5 Which of the following symbols represent input in a flowchart?



- 6 The set $K = \{-1, 0, 1, 2\}$ can be written in set builder notation as ...

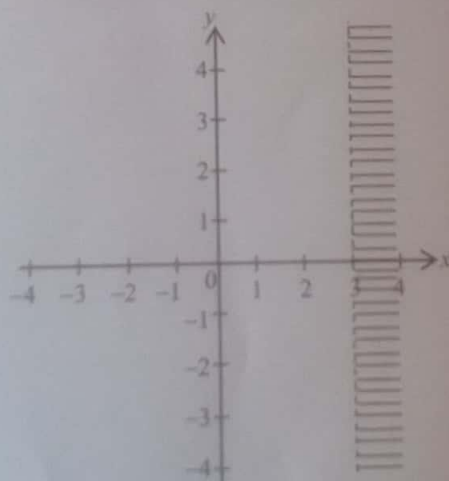
A $\{x: -1 \leq x \leq 2\}$.

B $\{x: -1 < x < 2\}$.

C $\{x: -1 \leq x < 2\}$.

D $\{x: -1 < x \leq 2\}$.

- 7 The following diagram shows the XOY plane with a shaded region.



Which of the following inequalities describes the shaded region?

A $x \leq 3$

B $x > 3$

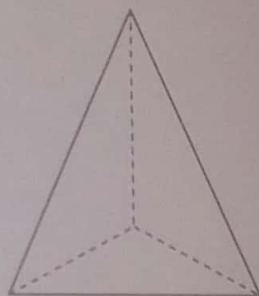
C $x \geq 3$

D $x < 3$

8 Which of the following is an irrational number?

- A $\sqrt{1}$
- B $\sqrt{4}$
- C $\sqrt{5}$
- D $\sqrt{25}$

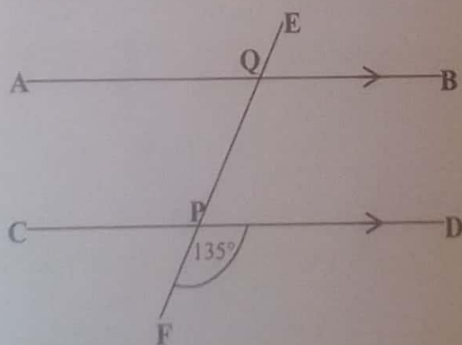
9 What is the name of the figure below?



- A Prism
- B Pyramid
- C Triangle
- D Cone

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10 In the diagram below, AB is parallel to CD and EF is a transversal meeting the parallel lines at Q and P. Angle DPF is 135° .



Find angle EQB.

- A 135°
- B 100°
- C 55°
- D 45°

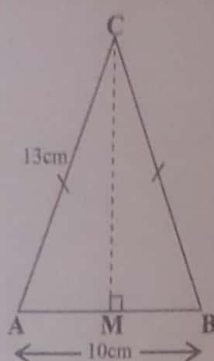
SECTION B [40 MARKS]

11 Solve the equation $5(x + 2) = 8$. [2]

12 Given that $f(x) = \frac{4x-5}{3}$, find $f(-7)$. [2]

13 A bricklayer used 288 bricks to build a wall in 4 hours. How many bricks can he use to build a similar wall in 6 hours working at the same rate? [2]

14 Evaluate $\sqrt[3]{64} + \sqrt{4}$. [2]

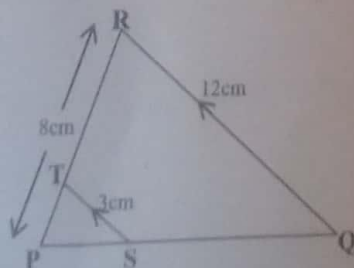
15 The diagram below shows an isosceles triangle ABC with $AC = BC$. AB is 10cm and AC is 13cm. M is the midpoint of AB and angle AMC is 90° .

Find the length of CM.

16 The volume of a metallic cuboid is 32cm^3 . Given that its density is 19.3g/cm^3 , find its mass. [2]

17 Given that $B = \begin{pmatrix} -1 & 3 & -1 \\ 1 & -2 & 0 \end{pmatrix}$,

(i) state the order of matrix B, [1]

(ii) find $-3B$. [1]18 The interior angle of a regular polygon is 140° . How many sides does it have? [2]19 The following diagram shows two similar triangles PQR and PST. QR is parallel to ST. $PR = 8\text{cm}$, $QR = 12\text{cm}$ and $ST = 3\text{cm}$.

Find the ratio of PT to PR in its lowest terms. [2]

- 20 A woman used 307 units of electricity for a month. The electricity company charges K3.00 per unit plus a fixed charge of K18.50. Find the total amount that she paid. [2]

21 Simplify $\frac{4a^2b^3 \times 5bc^2}{10ab^2c}$. [2]

- 22 In the diagram below, the bearing of P from Q is 160° .

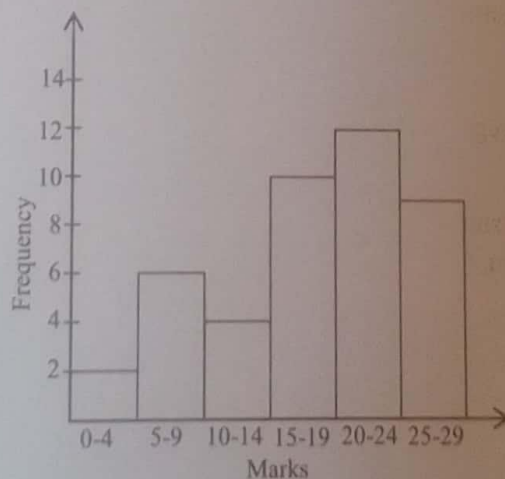


Find the bearing of Q from P. [2]

- 23 In a survey of 120 Grade 9 learners, it was found that 20 did not like music. Of the remaining learners, 82 liked Zambian music while 25 liked Jazz music. Find the number of learners who liked both types of music. [2]

- 24 Convert 11.101_{two} to base 10. [2]

- 25 The histogram below shows the marks scored by learners in a Grade 8 History test.

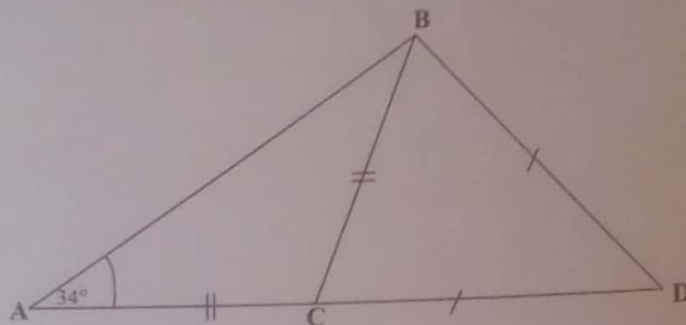


- (i) What was the modal class? [1]
(ii) How many learners were in this class? [1]

26 Factorise completely $3bc^2 - 24bc$. [2]

27 Given that $a = -2$, $b = 3$ and $c = -1$, find the value of $4ab - c^2$. [2]

28 The diagram below shows two triangles ABC and BCD in which $AC = CB$, $CD = DB$ and angle $CAB = 34^\circ$.



Calculate the size of angle BCD. [2]

29 A man earned a simple interest of K400.00 from a bank after investing for a period of 2 years at a rate of 5% per annum. How much did he invest? [2]

30 A girl had K150.00 to spend at the market. She bought the following items:

- 1 loaf of bread at K12.00,
- 1 packet of sugar at K23.50,
- 4 pens at K6.00,
- 5 books at K13.50 each,
- 1 packet of pencils at K3.15.

How much was her change? [2]