EXAMINATIONS COUNCIL OF ZAMBIA

JUNIOR SECONDARY EXTERNAL EXAMINATION (GRADE 9) – 2020

Mathematics 401/1

Paper 1

(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 **examination number**, **school/centre name** and **code** on the **Answer Sheet**.

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3 There are **two (2)** 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 (4)** 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

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

Cell phones and calculators are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

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SECTION A [10 MARKS]

Space for working

1 Find the value of $3 \times (-7)$.

A -21
B -4
C 4
D 21

2 Solve the inequation $2x + 7 \geq -1$.

A $x \leq -4$
B $x \geq -4$
C $x \geq 3$
D $x \leq 3$

3 Given that $a = 3$ and $b = -2$, find the value of $a(1 - b)$.

A 3
B 5
C 6
D 9

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4 Which of the following is an irrational number?

A 5.24
B 3.142
C $\sqrt{3}$
D $\sqrt{9}$

5 Evaluate $10^0 - 2^3$.

A -7
B -6
C -5
D 4

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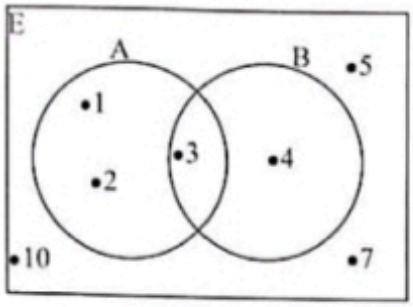
Space for working

6 The Venn diagram below illustrates sets A and B.



List the set A′.

A {4}
B {1, 2}
C {1, 2, 3}
D {4, 5, 7, 10}

7 Write 70.1956 correct to two decimal places.

A 70.20
B 70.19
C 70.10
D 70.00

8 Find the value of y in the diagram below.

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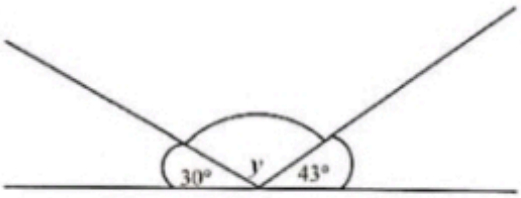

A 73°
B 90°
C 107°
D 287°

9 The following are scores for seven learners in a Mathematics test; 20, 60, 50, 20, 60, 50, 15. What is the median mark?

A 60
B 50
C 20
D 15

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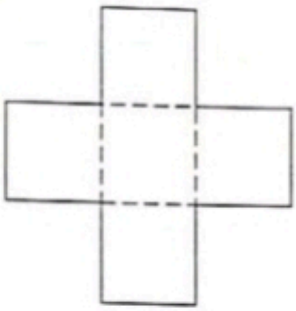
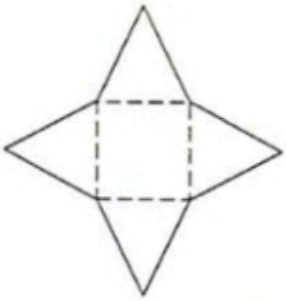
10 Which of the following is a net of a square based pyramid?

Space for working

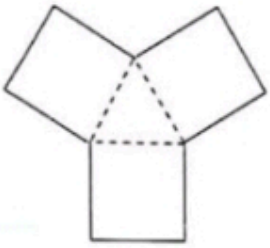
A



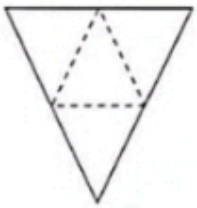
B



C



D



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SECTION B [40 MARKS]

11 Given that the matrix $P = \begin{pmatrix} 2 & 3 \\ -1 & 0 \end{pmatrix}$,

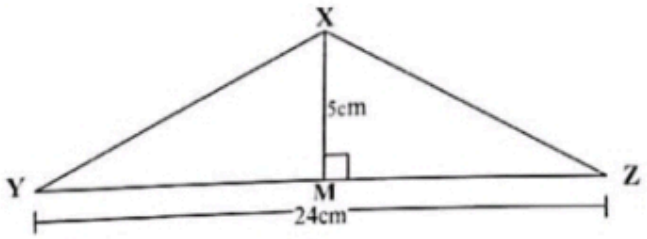
(a) state the order of matrix P,

(b) find $-2P$.

12 Find the value of $\sqrt[3]{8} + \sqrt{1}$.

13 Simplify $3x^2 - x + 4y^2 + 2x^2 - y^2$.

14 The diagram below shows an isosceles triangle XYZ in which YZ = 24cm, XM = 5cm and angle XMZ = 90°. M is the mid point of YZ.



Find the length of XY.

15 Solve the equation $3x - 5 = 4$.

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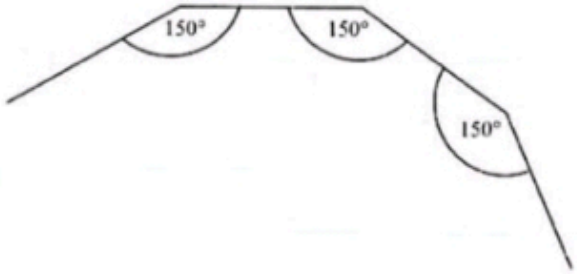
Space fo working

16 Convert 23.5 to a number in base 2.

17 Angles m and n are complementary. What is angle n if angle m is 22°?

18 The diagram below shows part of a regular polygon whose interior angles are 150°each.



How many sides does this polygon have?

19 Simplify $\frac{3p^4 \times q^5}{18q^7}$.

20 (a) Name one input device.

(b) How many faces has a triangular pyramid?

21 Mrs Kongola deposited K1 200.00 in a bank and after 6 months she got an interest of K180.00. Find the rate of interest.

22 The table below shows the marks obtained by 20 learners in a Mathematics test.

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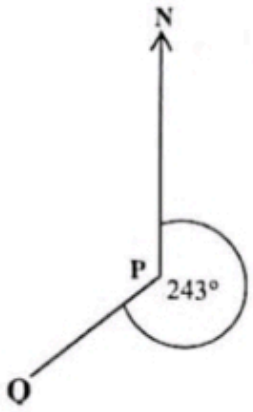
Marks	5	6	7	8	9
Frequency	3	4	6	4	3

Calculate the mean mark.

23 In the diagram below, **Q** is on a bearing of 243° from **P**.



Find in its lowest terms the bearing of **P** from **Q**.

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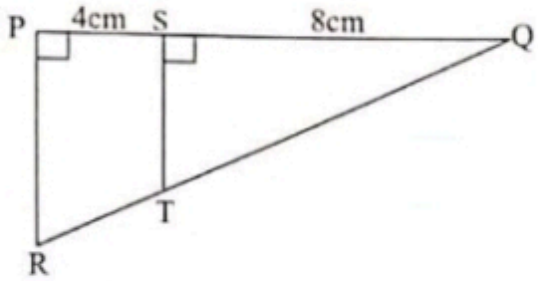
24 A solid of mass 160g has density 0.32g/cm^3. Calculate its volume.

Space for working

25 In the diagram below, PQ and QR are straight lines, angle QPR = angle QST = 90°, PS = 4cm and SQ = 8cm.



Find in its lowest terms the ratio

(i) PS : SQ,

(ii) PQ : SQ.

26 Mrs Kazingwe bought the following items;

3 kg of sugar at K11.00 per kg,

1 kg of onions at K9.00 per kg,

2 kg of beans at K20.00 per kg.

How much was her change if she had K90.00?

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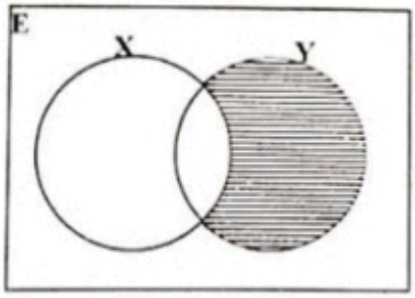
27 The Venn diagram below illustrates sets X and Y.



Use set notation to describe the shaded region.

28 The ratio of female teachers to male teachers at Tazingwe Secondary School is 7:5. If there are 42 female teachers, how many male teachers are there?

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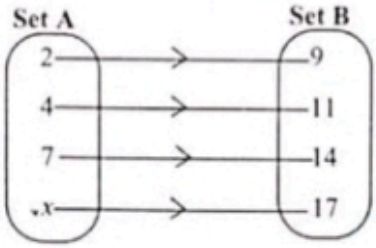
29 The diagram below shows a mapping from set A to set B.



Find the value of x.

30 A television set can be bought for K6 000.00 cash. It can also be bought on hire purchase by paying a deposit of K2 000.00 plus 6 equal monthly instalments of K1 000.00. Tambeni wants to buy the television on hire purchase. How much more will he pay on hire purchase?

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