



EXAMINATIONS COUNCIL OF ZAMBIA
GRADE SEVEN COMPOSITE EXAMINATION – 2023



Mathematics

SUBJECT 3/1

TD/M3/G7/2023

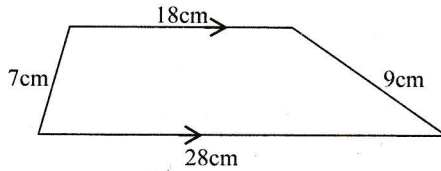
90 MINUTES

- 1 Read these instructions carefully.
- 2 **DO NOT** turn this page before you are told. Your teacher will tell you when to turn this page to begin the questions.
- 3 There are **60** questions in this **MATHEMATICS PAPER**. You will be given **EXACTLY 90 MINUTES** to do the questions.
- 4 For each question, four answers are given, but only one of the four is right. Work out which is the **BEST** answer. Then, on your **ANSWER SHEET**, mark the box completely by shading the answer space of the letter of your choice. If you had chosen answer **D** for a question, you would show it like this:-

A	B	C	
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- 5 You must **SHADE** your answer spaces **COMPLETELY** and **DARKLY** using an **HB** pencil. If you have to change your answer, you must rub out the shading **VERY NEATLY** before shading the new one. **USE A CLEAN RUBBER.**
- 6 When you have finished one page, go straight on without waiting to be told. If you have time left at the end of the question paper, use it to check your work carefully.
- 7 Look at your **ANSWER SHEET**. On the top left hand side are boxes which should have Examination Year, your School Number and Examination Number. It should also say **Subject 3 Paper 1**.
- 8 Look at your **ANSWER SHEET** again. At the bottom left hand side, it should have your Surname, Forename, Subject – **Mathematics**, Name of Primary School and your Secondary School of choice.
- 9 **PUT UP YOUR HAND NOW IF:** You have any question.
You have the wrong Answer Sheet.
You will **NOT** be able to ask questions once the examination has begun.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD.
USE ONLY AN HB PENCIL FOR YOUR ANSWERS.

- 1 The perimeter of the following trapezium is ...



- A 32cm.
B 42cm.
C 52cm.
D 62cm.
- 2 $367\ 452 + 456\ 577 =$

- A 824 029
B 823 929
C 813 929
D 813 029

- 3 Which of the following are multiples of 3?

- A 6, 9, 12, 14
B 6, 7, 8, 9
C 3, 6, 9, 12
D 3, 5, 7, 9

- 4 The table shows the number of oranges collected by a farmer from his orchard.

Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Number of oranges	42	19	0	39	1	40

On which day was the highest number of oranges collected?

- A Friday
B Monday
C Saturday
D Wednesday
- 5 Find the Highest Common Factor of 9 and 12.
- A 12
B 9
C 3
D 1

6 $954\ 751$
 $-362\ 948$

$$\begin{array}{r} 4 \\ 954 \\ -362 \\ \hline 591 \end{array}$$

- A 691 813
- B 592 803
- C 591 813
- D 591 803

7 Find the next number in the sequence below.
 98, 92, 86, 80, ...

- A 78
- B 74
- C 68
- D 64

8 $5.456 + 4.67 =$

$$\begin{array}{r} 5.456 \\ +4.67 \\ \hline 10.126 \end{array}$$

- A 10.126
- B 10.026
- C 59.23
- D 59.19

9 A boy has two pieces of wire measuring 3.45m and 1.9m. Find the total length of wire the boy has.

- A 1.55m
- B 2.55m
- C 5.35m
- D 6.35m

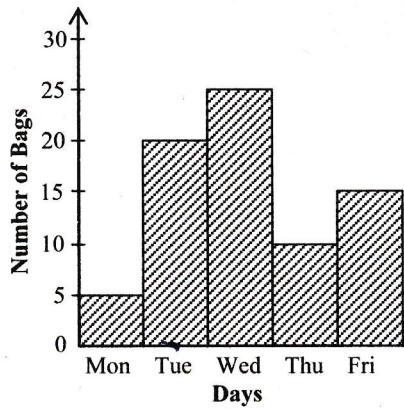
$$\begin{array}{r} 3.45 \\ +1.9 \\ \hline 5.35 \end{array}$$

10 $91.74 - 79.99 =$

$$\begin{array}{r} 8 \\ 91.74 \\ -79.99 \\ \hline 11.75 \end{array}$$

- A 11.75
- B 12.85
- C 22.75
- D 22.85

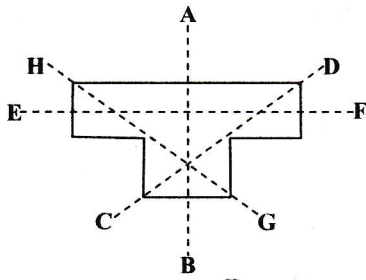
- 11 The graph shows the number of bags of maize harvested by a farmer in five days.



How many bags of maize were harvested on Tuesday?

- A 25
B 20
C 10
D 5
- 12 Arrange the following decimal numbers from the smallest to the biggest: 3.148, 3.158, 3.122, 3.199.
- A 3.199, 3.158, 3.148, 3.122
B 3.148, 3.158, 3.199, 3.122
C 3.122, 3.148, 3.158, 3.199
D 3.122, 3.158, 3.148, 3.199
- 13 A school has 462 books and buys 53 more books. How many books does the school have altogether?
- A 409
B 415
C 419
D 515
- 14 Express $3 \times 3 \times 3 \times 3$ in index notation.
- A 3×4
B 3^4
C 4^3
D 4×3

- 15 Which of the lines on the diagram is a line of symmetry?



- A GH
 B EF
 C CD
 D AB
- 16 Convert 35% to a decimal number.
 A 35
 B 3.5
 C 0.35
 D 0.035
- 17 A girl had 12 mangoes. She gave out y mangoes and remained with 3 mangoes. Find the value of y .
 A 4
 B 9
 C 15
 D 36
- 18 Change $\frac{3}{5}$ to a decimal number. 0.6
 A 0.006
 B 0.06
 C 0.6
 D 6.0
- 19 Find 12% of 400. $\frac{12}{100} \times 400 = 48$
 A 8
 B 12
 C 16
 D 48

20 Multiply $\frac{2}{9}$ by $\frac{1}{7}$.

- A $\frac{2}{15}$
- B $\frac{9}{14}$
- C $\frac{2}{63}$
- D $\frac{5}{7}$

$$\frac{63}{21}$$

Handwritten calculations for question 20:

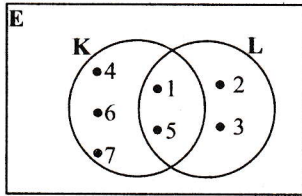
$$\begin{array}{r} 109 \\ 9 \overline{) 18} \\ \underline{9} \\ 9 \\ \underline{18} \\ 0 \end{array}$$

$$\begin{array}{r} 9 \overline{) 36} \\ \underline{18} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

$$\begin{array}{r} 9 \overline{) 54} \\ \underline{18} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

$$\begin{array}{r} 9 \overline{) 63} \\ \underline{18} \\ 45 \\ \underline{45} \\ 0 \end{array}$$

21 The diagram shows sets K and L.



The set $K \cap L$ is ...

- A {1, 5}.
 - B {2, 3}.
 - C {4, 6, 7}.
 - D {1, 2, 3, 4, 5, 6, 7}.
- 22 A teacher gave $\frac{2}{8}$ of a cake to the girls and $\frac{1}{8}$ of a cake to the boys to share. What fraction of the cake was shared altogether?

- A $\frac{1}{32}$
- B $\frac{3}{8}$
- C $\frac{2}{8}$
- D $\frac{1}{8}$

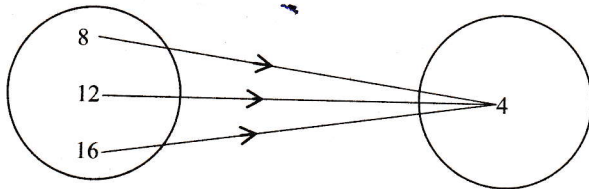
$$\begin{array}{r} 2 \\ \frac{1}{8} \\ \hline 2 \\ \underline{+ 1} \\ 3 \\ \hline \frac{3}{8} \end{array}$$

23 After sporting activities, 14 boys shared 126 bananas equally. How many bananas did each boy get?

- A 9
- B 112
- C 140
- D 1 764

$$\begin{array}{r} 14 \\ 126 \\ \hline 9 \end{array}$$

24 The mapping shown in the following diagram is a ...



- A many-to-many mapping.
- B many-to-one mapping.
- C one-to-many mapping.
- D one-to-one mapping.

25

$$\begin{array}{r} 257 \\ \times 32 \\ \hline \end{array}$$

- A 1 265
- B 1 285
- C 8 214
- D 8 224

$$\begin{array}{r} 1314 \\ 7810 \\ \hline 8024 \end{array}$$

$$\begin{array}{r} 14 \\ 14 \\ \hline 28 \\ 14 \\ \hline 42 \\ 14 \\ \hline 56 \\ 12 \\ \hline 68 \\ 12 \\ \hline 80 \\ 12 \\ \hline 92 \end{array}$$

26 A lady bought a radio at K820.00 and later sold it at K650.00. Find the loss that she made.

- A K170.00
- B K230.00
- C K270.00
- D K1 470.00

$$\begin{array}{r} K820.00 \\ - 650.00 \\ \hline 170.00 \end{array}$$

27 A girl bought the following items; milk at K35.00, tomatoes at K10.00 and sugar at K26.50. How much did she spend?

- A K61.00
- B K61.50
- C K71.00
- D K71.50

$$\begin{array}{r} 35.00 \\ 10.00 \\ 26.50 \\ \hline 71.50 \end{array}$$

$$\begin{array}{r} 35.00 \\ 10.00 \\ 26.50 \\ \hline 71.50 \end{array}$$

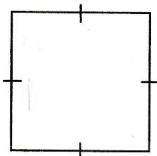
28 Arrange the numerals VIII, DC, XL in order of size from the smallest to the largest.

- A DC, XL, VIII
- B XL, DC, VIII
- C VIII, XL, DC
- D VIII, DC, XL

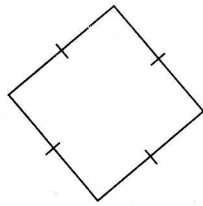
29 Express the ratio 2 : 14 : 18 in its lowest terms.

- A 9 : 7 : 2
- B 9 : 7 : 1
- C 2 : 7 : 9
- D 1 : 7 : 9

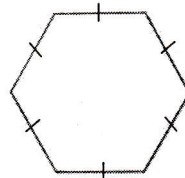
30 Which of the following shapes is a regular hexagon?



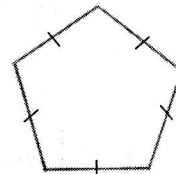
I



II



III



IV

A IV

B III

C II

D I

31 $315 \div 15 =$

A 21

B 201

C 300

D 330

32 $-4 + (-3) =$

A 7

B 1

C -1

D -7

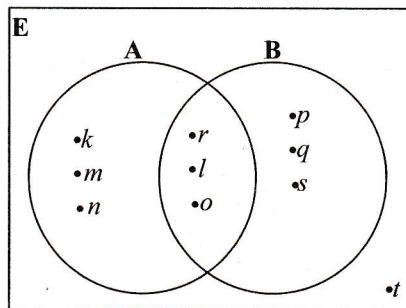
- 33 A packet of sugar costs K40.00. How much will 5 packets of the same size cost?
 A K200.00
 B K45.00
 C K35.00
 D K8.00

40.00
 5
 200.00

- 34 Find the value of $18 + (2 \times 3)$.
 A 20
 B 21
 C 23
 D 24

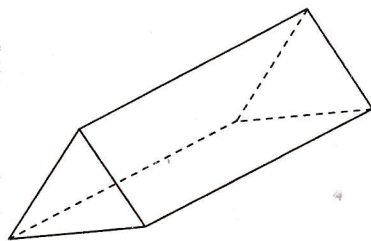
18
 20 x 3
 0

- 35 Study the Venn diagram below.



List set $A \cup B$.

- A $\{l, o, r\}$
 B $\{l, o, r, t\}$
 C $\{k, l, m, n, o, p, q, r, s\}$
 D $\{k, l, m, n, o, p, q, r, s, t\}$
- 36 What is the name of the following shape?



- A Cuboid
 B Cylinder
 C Trapezium
 D Triangular prism

- 37 A radio programme started at 10 25 hours and ended at 11 00 hours. How long did the programme last?
- A 35 minutes
B 75 minutes
C 85 minutes
D 125 minutes
- 38 $1121_{\text{five}} + 4432_{\text{five}} =$
- A 10003_{five}
B 10103_{five}
C 11003_{five}
D 11103_{five}
- 39 Arrange the following numbers from the smallest to the largest: $-3, 0, 1, 4, -1, 2$.
- A $-1, 0, 1, 2, -3, 4$
B $-3, -1, 0, 1, 2, 4$
C $0, -1, 1, 2, -3, 4$
D $1, -1, 0, 2, -3, 4$
- 40 Which of the following numbers has 2 and 3 as its prime factors?
- A 5
B 9
C 12
D 15
- 41 What is the mode of 2, 4, 7, 5, 4 and 8?
- A 2
B 4
C 7
D 8
- 42 If $13 + r > 39$, then ...
- A $r > 3$.
B $r > 16$.
C $r > 26$.
D $r > 52$.

10 25
11 00
21 25

11215
4432
10003

43 Convert 79 to a number in base five.

- A 304_{five}
- B 340_{five}
- C 403_{five}
- D 430_{five}

79
 79
 8 79
 5
 60

44 The length of a rope is 28.16m. Round off this length to one decimal place.

- A 29.0m
- B 28.2m
- C 28.1m
- D 28.0m

45 A man bought a shirt for \$3. What was the cost of the shirt in Zambian Kwacha, if \$1 = K21.00?

- A K7.00
- B K18.00
- C K24.00
- D K63.00

3 - 21.00.00
 63.00

46 In Arabic numerals, the Roman numeral DLXVI can be written as ...

- A 666.
- B 566.
- C 564.
- D 546.

55

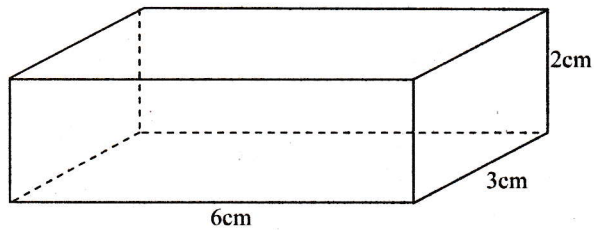
47 How much discount was a girl given for a book costing K110.00, if she paid K90.00?

- A K20.00
- B K90.00
- C K110.00
- D K200.00

110.00
 90.00

 20.00

- 48 Find the volume of the following cuboid.



- A 6cm^3
B 12cm^3
C 18cm^3
D 36cm^3
- 49 If set $M = \{\text{maize, rice, wheat, millet}\}$ and set $N = \{\text{samp, wheat, sorghum, maize}\}$, list the set $M \cup N$.
A $\{\text{maize, millet, rice, samp, sorghum, wheat}\}$
B $\{\text{maize, millet, rice, wheat}\}$
C $\{\text{maize, samp, sorghum, wheat}\}$
D $\{\text{maize, wheat}\}$
- 50 A circle has a diameter of 14cm. Calculate its circumference ($\pi = 3.14$).
A 10.86cm
B 17.14cm
C 43.96cm
D 44.96cm
- 51 $\frac{2}{5} \div \frac{2}{5} =$
A $\frac{1}{3}$
B $\frac{1}{6}$
C $\frac{24}{25}$
D $4\frac{4}{5}$

$$\begin{array}{r}
 52 \quad \overset{15}{6} 6 2_{\text{eight}} \\
 - 3 6 7_{\text{eight}} \\
 \hline
 \end{array}$$

- A** 373_{eight}
B 303_{eight}
C 273_{eight}
D 203_{eight}
- 53 Round off 3 265 to the nearest ten.

- A** 3 260
B 3 270
C 3 300
D 3 370

- 54 Find the value of 4^3 .

- A** 64
B 43
C 12
D 7

55 $\frac{1}{3} + \frac{2}{5} =$

- A** $\frac{3}{15}$
B $\frac{8}{15}$
C $\frac{11}{15}$
D $\frac{3}{8}$

- 56 An angle which is greater than 90° but less than 180° is called ... angle.

- A** an acute
B an obtuse
C a reflex
D a right

- 57 If 49 pencils are shared among Jane, Mercy and Mary in the ratio 1 : 2 : 4, how many pencils will Mercy get?
- A 49
 - B 28
 - C 14
 - D 7
- 58 A car covered a distance of 180km in 3 hours. What was the speed of the car?
- A 60km/h
 - B 177km/h
 - C 183km/h
 - D 540km/h
- 59 Calculate the simple interest on K15 000.00 invested for 5 years at 10% per annum.
- A K30 000.00
 - B K22 500.00
 - C K15 000.00
 - D K7 500.00
- 60 A Grade 8 learner got 14 marks out of 25 in a Science test. Express the marks he got as a percentage.
- A 56%
 - B 46%
 - C 39%
 - D 11%

STOP! PLEASE CHECK ALL YOUR WORK CAREFULLY