

**MATHEMATICS**



**JUNE. 2022 - 2 hours**

**INSTRUCTIONS TO CANDIDATES (Please read these instructions carefully)**

1. You have been given this question booklet and a separate answer sheet. The question booklet contains 50 questions.
2. Do any necessary rough work in this booklet.
3. When you have chosen your answer, mark it on the **ANSWER SHEET**, not in the question booklet.

**HOW TO USE THE ANSWER SHEET**

4. Use an ordinary pencil only.
5. Confirm the answer sheet that you have been provided with has the following:  
 YOUR INDEX NUMBER  
 YOUR NAME  
 NAME OF YOUR SCHOOL
6. Do not make any marks outside the boxes.
7. Keep the sheet as clean as possible and do not fold it.
8. For each of the questions 1-50, four answers are given. The answers are are lettered A, B, C and D in each case only **ONE** of the four answers is correct. Choose the correct answer.
9. On the answer sheet the correct answer is to be shown by drawing a dark line inside the box in which the letter you have chosen is written.

**Example**

In the Question Booklet:

12. The area of a square piece of land is  $3136m^2$ . What is its perimeter?  
 A. 112m  
 B. 184m  
 C. 224m  
 D. 444m

The correct answer is C.

**On the answer sheet:**

12. (A) (B)  (C) (D)    22. (A) (B) (C) (D)    32. (A) (B) (C) (D)    42. (A) (B) (C) (D)

In the set of boxes numbered 12, the box with the letter C printed in it is marked.

10. Your dark line **MUST** be within the box.
11. For each question **ONLY ONE** box is to be marked in each set of four boxes.



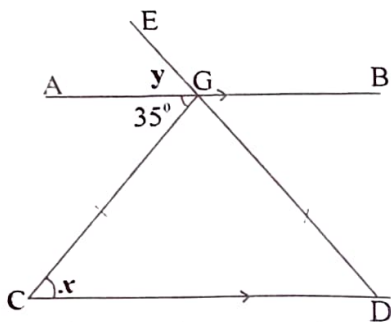
This Question Paper consists of 12 printed pages.

TURN OVER



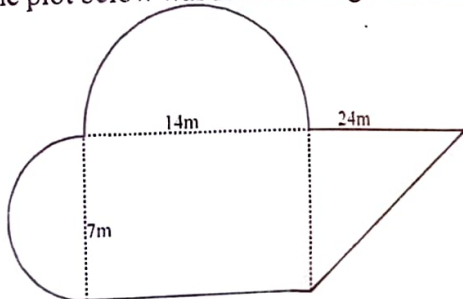
1. What is **4440044.004** written in words?
  - A. Four million four hundred and forty thousand and forty four thousandths.
  - B. Four million four hundred and four thousand and forty four and four thousandths.
  - C. Four million four hundred and forty thousand and forty four and four thousandths.
  - D. Four million four hundred and forty thousand and forty and four hundredths.
  
2. What is the difference between the total value of digits **6** and **8** in the number **4659812**?
  - A. 750
  - B. 600800
  - C. 599200
  - D. 7500
  
3. What is the value of;  $120 \times 4 \div (45 + 15) - 3 + 2$ ?
  - A. 13
  - B. 7
  - C. 5
  - D. 3
  
4. What is; **928.9985** rounded off to the nearest hundredths?
  - A. 928.99
  - B. 928.00
  - C. 928.999
  - D. 929.00
  
5. What is the sum of the LCM and GCD of 48, 72 and 96?
  - A. 264
  - B. 288
  - C. 312
  - D. 240
  
6. What is the value of;  $1345.92 \div 48$ ?
  - A. 28.04
  - B. 28.42
  - C. 28.4
  - D. 2.84

7. In the figure below, line **AB** is parallel to **CD**. Line **CG** and **EF** are transversals. Angle **AGC** =  $35^\circ$  line **CG** and **DG** are equal.



What is the sum of angles **x** and **y** in the figure above?

- A.  $110^\circ$   
 B.  $145^\circ$   
 C.  $70^\circ$   
 D.  $35^\circ$
8. What is the place value of digit 7 obtained after dividing 3 by 16?  
 A. Tenths  
 B. Ten thousandths  
 C. Hundred thousandths  
 D. Thousandths.
9. What is;  $\frac{8}{9}, \frac{11}{13}, \frac{2}{3}, \frac{4}{7}$  arranged in ascending order?  
 A.  $\frac{4}{7}, \frac{2}{3}, \frac{11}{13}, \frac{8}{9}$   
 B.  $\frac{8}{9}, \frac{11}{13}, \frac{2}{3}, \frac{4}{7}$   
 C.  $\frac{2}{3}, \frac{4}{7}, \frac{11}{13}, \frac{8}{9}$   
 D.  $\frac{8}{9}, \frac{11}{13}, \frac{4}{7}, \frac{2}{3}$
10. The plot below was fenced using 5 strands of wire.



What was the total length of the wire used?

- A. 645m  
 B. 480m  
 C. 240m  
 D. 96m

11. Nyagweso had  $x$  books while Auma had 3 more books than Nyagweso. Wanja had twice as many books as what both Nyagweso and Auma had. How many books did they have altogether?
- A.  $6x + 3$
  - B.  $4x + 6$
  - C.  $6x + 9$
  - D.  $6x + 6$

12. Kamal sold a watch for sh. 966 and made a profit of 15%. For how much more should he have sold it to make a profit of sh. 140?
- A. Sh. 980
  - B. Sh. 120
  - C. Sh. 840
  - D. Sh. 14

13. What is the next number in the pattern;

$$2\frac{1}{5}, 2\frac{3}{5}, 3\frac{2}{5}, 3\frac{4}{5} \text{ --- ?}$$

- A.  $4\frac{1}{5}$
  - B.  $4\frac{3}{5}$
  - C.  $4\frac{2}{5}$
  - D.  $4\frac{4}{5}$
14. Construct triangle  $XYZ$  where line  $XY = 6\text{cm}$ , angle  $XYZ = 110^\circ$  and angle  $YZX = 35^\circ$ . Draw a circle touching its vertices. What is the measure of its radius?
- A. 3.1cm
  - B. 4.6cm
  - C. 2.7cm
  - D. 5.1cm
15. The sizes of shoes in a shop was recorded as follows; 8, 6, 4, 8, 5, 4, 8, 7, 4, 7, 8, 7 and 5. What was the modal shoe size?
- A. 7
  - B. 4
  - C. 8
  - D. 5

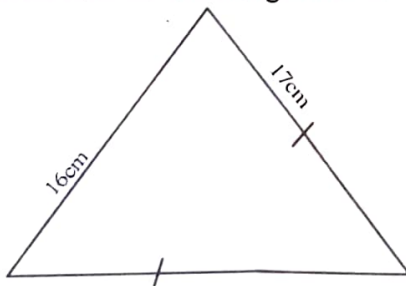
16. The following are properties of quadrilaterals.
- (i) Opposite sides are equal.
  - (ii) Diagonals bisect interior angles.
  - (iii) Diagonals are equal.
  - (iv) All sides are equal.
  - (v) Opposite angles are equal.
- Which of the above properties describe a rhombus?
- A. (ii), (iv), (v)
  - B. (i), (iii), (iv), (v)
  - C. (ii), (iii), (iv), (v)
  - D. (i), (ii), (iii), (v)

17. The table below shows the number of pupils absent in a class of 36 in one week.

Days of the week	Mon	Tue	Wed	Thur	Fri
No. of Boys	3	2	1	6	3
No. of Girls	2	4	1	6	5

Which day had the highest attendance?

- A. Friday
  - B. Thursday
  - C. Wednesday
  - D. Tuesday
18. What is the value of **n** in the equation;  
 $2(3n - 5) + 3(n - 5) = 47$ ?
- A. 6
  - B. 8
  - C. 7
  - D. 9
19. Dorothy and Derota shared some money in the ratio 4:7 respectively. If Derota got sh. 3600 more than Dorothy how much money did Derota get?
- A. Sh. 4800
  - B. Sh. 9600
  - C. Sh. 8400
  - D. Sh. 6400
20. What is the area of the figure below?



- A.  $90\text{cm}^2$
- B.  $180\text{cm}^2$
- C.  $240\text{cm}^2$
- D.  $120\text{cm}^2$

21. What is the value of;

$$\frac{5}{8} \text{ of } \frac{2}{5} \div \left( \frac{1}{2} \text{ of } \frac{1}{8} \right) - \frac{1}{2} + \frac{1}{3} ?$$

- A.  $3\frac{1}{6}$
- B.  $3\frac{5}{6}$
- C.  $4\frac{1}{6}$
- D.  $4\frac{5}{6}$

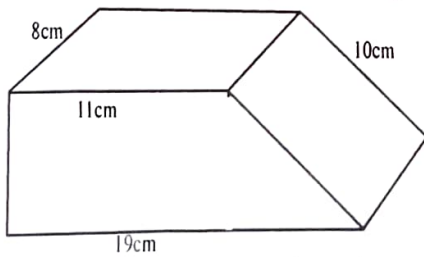
22. On a map whose scale is 1:20000, a ranch is represented by a rectangle measuring 4cm by 3cm. What is the area of the ranch in Ares?  
 A. 4800Ares  
 B. 480Ares  
 C. 48Ares  
 D. 4.8Ares

23. Sheilah bought the following items from a shop;

- $\frac{1}{2}$  litre packet of milk @ sh.50
  - A 2 kg packet of maize flour @ sh. 120.
  - 2 bars of soap for sh. 230
  - 2 kg sugar for sh. 110 per kilogram.
- How much money did she pay for the items?  
 A. Sh. 740  
 B. Sh. 790  
 C. Sh. 860  
 D. Sh. 620

24. After sleeping for  $7\frac{1}{2}$  hours, Tim woke up at 6.15am. At what time had he slept?  
 A. 0015h  
 B. 2245h  
 C. 2415h  
 D. 1345h

25. The figure below represents a piece of wood.



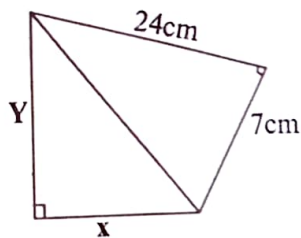
What is the volume of the piece of wood?  
 A.  $1800\text{cm}^3$   
 B.  $640\text{cm}^3$   
 C.  $720\text{cm}^3$   
 D.  $1200\text{cm}^3$



26. At what rate p.a should sh. 40000 be paid to generate a simple interest of sh. 1000 for a period of 4 months?
- A.  $\frac{5}{8}\%$
  - B.  $7\frac{1}{2}\%$
  - C. 15%
  - D.  $12\frac{1}{2}\%$

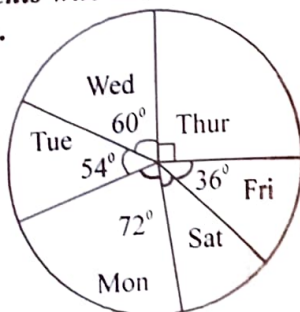
27. Which of the following numbers increases by thousandths?
- A. 0.1234, 0.1235, 0.1236, 0.1237
  - B. 0.1234, 0.1334, 0.1434, 0.1534
  - C. 0.1234, 0.2234, 0.3234, 0.4243
  - D. 0.1234, 0.1244, 0.1254, 0.1264

28. What is the possible values of X and yY in the figure below?



- | X        | Y    |
|----------|------|
| A. 12cm  | 16cm |
| B. 100cm | 24cm |
| C. 15cm  | 20cm |
| D. 8cm   | 15cm |

29. The circle graph below shows the number of patients who attended a certain hospital in 6 days.

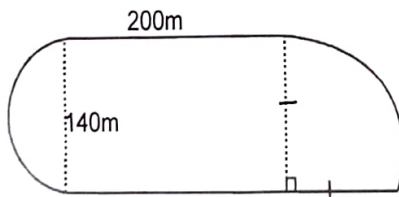


If 24 patients attended the hospital on Saturday, how many patients attended the hospital on both Monday and Tuesday?

- A. 60
- B. 61
- C. 62
- D. 63

30. What is;  $\frac{3(qp + r) - 3qp}{2(r + qp) - qp - 2r}$  expressed in its simplest form?
- A.  $\frac{3r}{qp}$
- B.  $\frac{r}{qp}$
- C.  $\frac{3r}{2qp}$
- D.  $\frac{r}{2qp}$
31. Mwangi paid sh. 5550 for a phone after a discount of  $7\frac{1}{2}\%$ . What was the marked price of the phone?
- A. Sh. 7200
- B. Sh. 6000
- C. Sh. 450
- D. Sh. 4500
32. An aeroplane took 4 hours to travel from Lagos to Lusaka, a distance of 720km. What was its speed in m/s?
- A. 180m/s
- B. 90m/s
- C. 50m/s
- D. 45m/s
33. Murunga used 0.2 of his money on transport, 0.4 on rent, 0.3 on food and saved the rest. If he saved sh. 750, how much does he earn?
- A. Sh. 12000
- B. Sh. 8000
- C. Sh. 6000
- D. Sh. 7500

34. The figure below represents Mr. Kalo's piece of land.



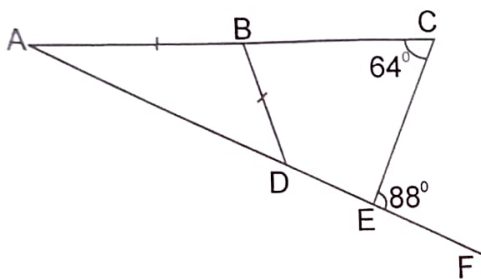
What is the area of the piece of land in hectares?

- A. 5.11ha
- B. 5.65ha
- C. 6.65ha
- D. 8.35ha



35. A farmer has 8 Freshian cows and 15 Jersey cows. Each Freshian cow produces 9 litres of milk in the morning and 6 litres in the evening. Each Jersey cow produces 5 litres in the morning and 3 litres in the evening. What percentage of milk is produced by the Jersey breed in a day?
- A.  $12\frac{1}{2}\%$   
 B. 25%  
 C.  $34\frac{18}{23}\%$   
 D. 50%

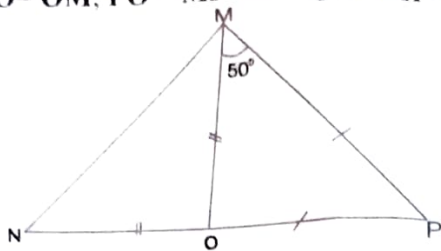
36. In the figure below,  $ADF$  is a straight line. Line  $AB = BD$ . Angle  $BCE = 64^\circ$  and angle  $CEF = 88^\circ$ .



What is the value of angle ABD?

- A.  $132^\circ$   
 B.  $44^\circ$   
 C.  $122^\circ$   
 D.  $124^\circ$
37. A salesman earns a basic salary of sh. 8000 and a commission on all sales above sh. 50000. In one month, he sold goods worth sh. 170000 and earned a total of sh. 11600. What was the percentage commission offered?
- A.  $2\frac{2}{7}\%$   
 B. 3%  
 C. 5%  
 D.  $9\frac{1}{3}\%$
38. Construct a rhombus  $WXYZ$  where line  $WX = 7.5\text{cm}$  and angle  $WXY = 54^\circ$ . What is measure of the diagonal  $XZ$ ?
- A. 6.9cm  
 B. 14.2cm  
 C. 12.1cm  
 D. 13.1 cm

39. In the figure below, **NOP** is a straight line. Line **NO = OM, PO = MP** and angle **OMP = 50°**.



What is the value of angle **MNO**?

- A.  $25^\circ$   
 B.  $30^\circ$   
 C.  $80^\circ$   
 D.  $40^\circ$
40. A bucket weighs 11kg when  $\frac{1}{4}$  full of sand. It weighs 20kg when  $\frac{1}{2}$  full. How many kilograms will it weigh when full?  
 A. 44kg  
 B. 40kg  
 C. 36kg  
 D. 38kg
41. If  $a = 3$ ,  $b = a + 1$  and  $c = 2a + b$ , what is the value of;  

$$\frac{a(c - b)}{2a} + \frac{a^2 - b}{\frac{1}{2}c}$$
 ?  
 A. 3  
 B. 4  
 C. 2  
 D. 6
42. A farmer hired 8 men to dig a piece of land in 12 days. After working for 4 days, 4 men fell sick. How many more days did the work take than expected?  
 A. 8  
 B. 4  
 C. 6  
 D. 2
43. What is the value of;  $\frac{4.24 + 3.6 \times 1.6 - 3.75}{0.25}$   
 A. 2.5  
 B. 15  
 C. 25  
 D. 250

Working Space

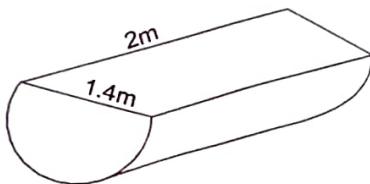
44. The table below shows distance in kilometers between town U and town Z.

U						
75	V					
98	23	W				
200	80	57	X			
217	141	119	62	Y		
315	249	27	160	98	Z	

Wanjau drove from town U to town Z via town X and took 4 hours. What was his speed in m/s?

- A. 25m/s
- B. 30m/s
- C. 45m/s
- D. 90m/s

45. The trough below was painted both inside and outside. What was the total area painted?



- A.  $8.8\text{m}^2$
- B.  $11.88\text{m}^2$
- C.  $5.91\text{m}^2$
- D.  $12.32\text{m}^2$

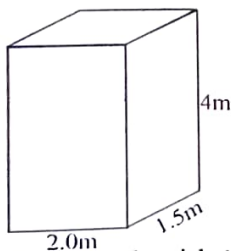
46. A solid has 5 faces and 6 vertices. How many edges is the solid likely to have?

- A. 9
- B. 11
- C. 14
- D. 12

47. The hire purchase price of a sewing machine is sh. 48000. A trader paid a deposit and the rest in 13 equal monthly installments of sh. 3000 each. How much deposit did he pay?

- A. Sh. 39000
- B. Sh. 11000
- C. Sh. 12000
- D. Sh. 9000

48. The tank below is used for storing water.



How many litres does it hold when full?

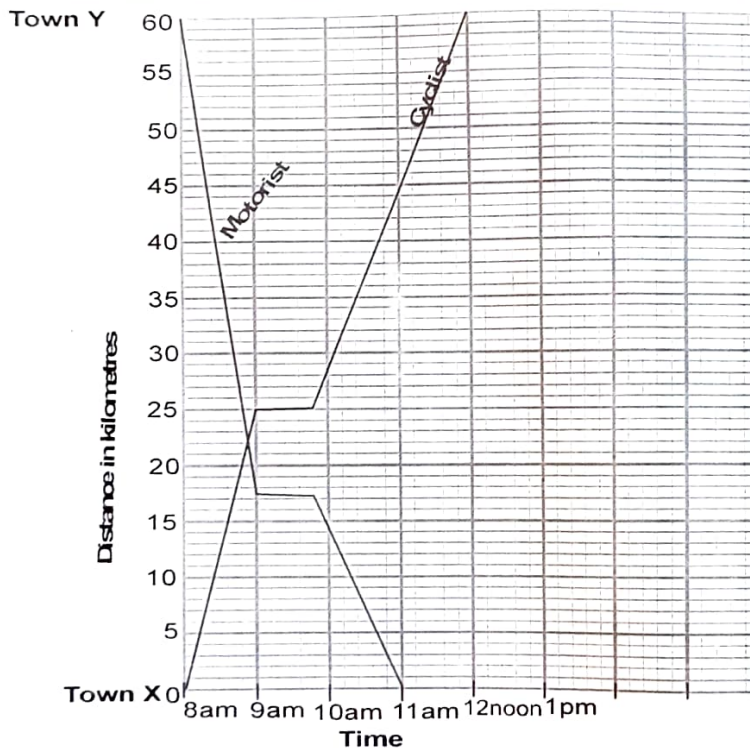
- A. 120litres
- B. 1200litres
- C. 12000litres
- D. 120000litres

49. *The table below shows the rate of commission charged for sending ordinary and telegraphic money orders.*

Value of order	Ordinary money orders sh.	Telegraphic money order sh.
Not exceeding-500	44	63
501 - 1500	98	114
1501 - 3000	126	182
3001 - 4500	190	219
4501 - 7000	220	265
7001 - 10000	294	318
10001 - 15000	320	375
15001 - 20000	384	450

King'ori send sh. 12500 using telegraphic money order and sh. 17200 using ordinary money order. How much did he pay at the pay at the post office?

- A. Sh. 32459  
 B. Sh. 29700  
 C. Sh. 759  
 D. Sh. 30459
50. *The graph below shows the journey of a cyclist and a motorist travelling in opposite directions.*



How far from town Y was the cyclist when the motorist arrived at town X?

- A. 45km  
 B. 15km  
 C. 25km  
 D. 35km