

MATHEMATICS

Time: 2 hours

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 only an ordinary pencil.

5. Make sure that you have written on the answer sheet:

YOUR INDEX NUMBER

YOUR NAME

NAME OF YOUR SCHOOL

6. By drawing a dark line inside the correct numbered boxes mark your full Index Number (i.e. School Code Number and the three-figure Candidate's Number) in the grid near the top of the answer sheet.
7. Do not make any marks outside the boxes.
8. Keep your answer sheet as clean as possible and **DO NOT FOLD IT**.
9. For each of the Questions 1 – 50, four answers are given. The answers are lettered A, B, C and D. In each case only **ONE** of the four answers is correct. Choose the correct answer.
10. 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:

14. A rectangle has a perimeter of 160 m. What is its width if the longer side is 55m?

- A. 215m
- B. 25m
- C. 105m
- D. 50m

The correct answer is **B** (25m)

On the answer sheet:

4 | A | B | C | D |    14 | A | B | C | D |    24 | A | B | C | D |    34 | A | B | C | D |    44 | A | B | C | D |

In the set of boxes numbered 14, the box with the letter B printed in it is marked.

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

This question paper consists of 8 printed pages.

Candidates should check the question paper to ensure that all the pages are printed as intended and no questions are missing.

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1. Which of the following number is eighteen million eighteen thousand eight hundred and ten?  
 A. 18 180 810  
 B. 18 018 810  
 C. 18 108 810  
 D. 18 018 018
2. What is the total value of digit 4 obtained after working out  $0.0576 \div 2.4$ ?  
 A. 0.4  
 B. 0.04  
 C. 0.004  
 D. 0.0004
3. What is 789.6594 rounded off to two decimal places?  
 A. 789.66  
 B. 789.65  
 C. 789.60  
 D. 789.00
4. The perimeter of a square piece of land is 224m. What is its area?  
 A.  $112\text{m}^2$   
 B.  $50176\text{m}^2$   
 C.  $3136\text{m}^2$   
 D.  $12544\text{m}^2$
5. What is the difference of the LCM and HCF of 24, 48 and 72?  
 A. 144  
 B. 24  
 C. 120  
 D. 168
6. The fractions  $\frac{3}{7}$ ,  $\frac{2}{5}$ ,  $\frac{4}{9}$  and  $\frac{3}{8}$  are to be arranged in order from the **largest** to the **smallest**. Which is the correct order?  
 A.  $\frac{2}{5}$ ,  $\frac{3}{7}$ ,  $\frac{3}{8}$ ,  $\frac{4}{9}$   
 B.  $\frac{4}{9}$ ,  $\frac{3}{7}$ ,  $\frac{5}{5}$ ,  $\frac{8}{8}$   
 C.  $\frac{3}{8}$ ,  $\frac{2}{5}$ ,  $\frac{3}{7}$ ,  $\frac{4}{9}$   
 D.  $\frac{4}{9}$ ,  $\frac{3}{8}$ ,  $\frac{3}{7}$ ,  $\frac{2}{5}$
7. What is the next number in the sequence 6, 7, 11, 20, 36,  
 A. 61  
 B. 57  
 C. 25  
 D. 63
8. What is the value of  $\frac{3(16+2^2)-5 \times 9 \div 3}{45 \div 3}$ ?  
 A. 45  
 B. 15  
 C. 3  
 D. 12
9. A rectangular plot has a diagonal of 170m and a width of 80m. What is the area of the plot in ares?  
 A. 12 000  
 B. 120  
 C. 13 600  
 D. 136
10. Which one of the numbers below is the square root of 0.3025?  
 A. 0.055  
 B. 0.65  
 C. 0.065  
 D. 0.55
11. What is the simplest form of  $2(3x - 2y) + 3(x - 3y)$   
 A.  $10x + 12y$   
 B.  $2x + 6y$   
 C.  $9x + 13y$   
 D.  $9x - 13y$
12. What is the value of  $y$  in the equation?  

$$\frac{5}{2} + \frac{2(3y-5)}{3} = 10$$
  
 A.  $7\frac{11}{12}$   
 B.  $\frac{1}{5}$   
 C.  $5\frac{5}{12}$   
 D.  $3\frac{1}{12}$

13. What is the value of  $y \frac{3x + 2(4z - 6y)}{3y}$   
if  $y = \frac{1}{2}x$ ,  $x = 2$  and  $z = x + y$

- A. 6
- B. 12
- C. 9
- D. 18

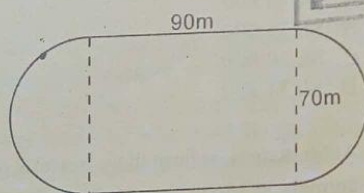
14. The length of a plot is 60m and the width is 40m. Each side is increased by 10%. What is the increase in the area of the plot?

- A. 2904m<sup>2</sup>
- B. 504m<sup>2</sup>
- C. 2400m<sup>2</sup>
- D. 404m<sup>2</sup>

15. An isosceles triangle has a perimeter of 64cm. Two of the sides measures 24cm and 20cm. What is the area of the triangle?

- A. 192cm<sup>2</sup>
- B. 384cm<sup>2</sup>
- C. 240cm<sup>2</sup>
- D. 480cm<sup>2</sup>

16. The figure below shows a track.



Chepchumba ran round the track 15 times. How many kilometers did she cover?

- A. 6km
- B. 60km
- C. 600km
- D. 6000km

17. Khadija's piece of land measures 600m by 400m. The land is to be fenced using 5 strands of wire. A gate of 5m is to be left. What is the length of the wire used?

- A. 2000m
- B. 1995m
- C. 9975m
- D. 10 000m

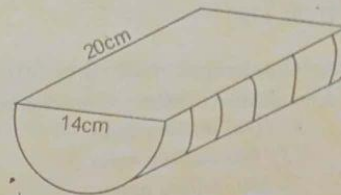
18. The following are characteristics of a certain quadrilateral.

- (i) Interior angles add up to 360°
- (ii) Has one pair of parallel sides
- (iii) Diagonals are not equal

The quadrilateral described above is

- A. Parallelogram
- B. Rhombus
- C. Trapezium
- D. Rectangle

19. The figure below shows a block of wood.



What is its surface area?

- A. 594cm<sup>2</sup>
- B. 874cm<sup>2</sup>
- C. 1188cm<sup>2</sup>
- D. 1428cm<sup>2</sup>

20. The volume of a cylindrical tank is 12320cm<sup>3</sup>. If it has a height of 20cm, what is the surface area when closed?

- A. 616cm<sup>2</sup>
- B. 1232cm<sup>2</sup>
- C. 2992cm<sup>2</sup>
- D. 1760cm<sup>2</sup>

21. A rectangular water tank measures 1.6m by 1.2m by 80cm. The tank is  $\frac{3}{8}$  full of water. How many more litres of water are required to fill the tank?

- A. 1536 litres
- B. 960 litres
- C. 576 litres
- D. 2112 litres

22. A family uses 5-5dl packets of milk daily. How many litres of milk will the family consume in the first quarter of the year 2022?

- A. 22.5 litres
- B. 225 litres
- C. 30 litres
- D. 300 litres

23. Hassan bought the following items from a shop.

3kg flour @ sh.125  
3½ litres of cooking oil @ 120  
2 bars of soap for sh.320  
3 packets of milk @ sh.65  
5 rolls of tissues @ sh.30

If he paid using 2-1000 shilling notes, how much balance did he remain with?

- A. Sh.1460  
B. Sh.220  
C. Sh. 540  
D. Sh.1780
24. A shopkeeper had the following denomination of money in his cash box.
- 5 - 1000 shilling notes  
12 - 500 shilling notes  
7 - 200 shilling notes  
13 - 100 shilling notes  
35 - 50 shilling notes

He decided to change all the money into 50 shilling notes. How many notes did he get?

- A. 309  
B. 15450  
C. 240  
D. 209
25. Omwani bought 60 pineapples at sh.30 each. He also spent sh.200 on transport. Five of the pineapples were eaten at home and sold the rest at sh.50 each. What percentage profit did he make?
- A. 75%  
B. 35%  
C. 52.78%  
D. 37.5%

26. Jane paid sh.51 000 after getting 15% discount. How much more would she have paid if she was given 12% discount?
- A. Sh.13 770  
B. Sh.7 200  
C. Sh. 1 800  
D. Sh.6 120

27. Norah deposited sh.200 000 in a commercial bank that paid simple interest at the rate of 5% per month. How much was in her account after one year?

A. Sh.120 000  
B. Sh.320 000  
C. Sh.220 000  
D. Sh.210 000

28. The marked price of an item is Sh.48 000 but 10% discount is allowed on cash payment. The hire purchase price includes a deposit of sh.12 000 and 18 equal monthly instalment of sh.2 200. How much more than cash price is the hire purchase price?

A. Sh.8400  
B. Sh.43200  
C. Sh.51600  
D. Sh.3600

29. A company offers a monthly salary of sh.15000 and a 4% commission on all the sales above sh.80 000. How much money did an employee earn in a month she sold goods worth half million?

A. Sh.16 800  
B. Sh.35 000  
C. Sh.20 000  
D. Sh.31 800

30. At Mr. Korinkos farm there is a total of 3600 animals. 0.25 are cows, 0.3 are sheep while 0.5 of the remainder are chicken and the rest are goats. What is the total number of goat and chicken in his farm?

A. 810  
B. 1620  
C. 1980  
D. 1080

31. On a map whose scale is 1:50000 a piece of land is represented by 5cm by 3cm. What is the actual size of the land in hectares?

A. 3750000  
B. 37500  
C. 375  
D. 3.75

32. 12 pupils scored the following marks in a test.  
12, 13, 17, 16, 15, 12, 11, 13, 12, 14, 18 and 19

What is the sum of mode and median?

- A. 13.5  
B. 12  
C. 25.5  
D. 15.5

33. The table shows the time table of Ena Coach from town A to town E.

Town	Arrival	Departure
A		5.30am
B	7.15am	7.40am
C	8.55am	9.15am
D	11.25am	11.45am
E	2.30pm	

How long does it take from town B to the time it departs from town D?

- A. 3hrs 45 min  
B. 4hrs 05min  
C. 4hrs 30min  
D. 4hrs 10min

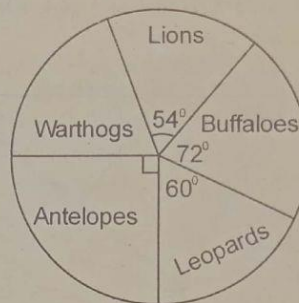
34. Nanok travelled from Lodwar to Kitale a distance of 420km. It took him 5 hours to travel to Kitale. He stayed at Kitale for 3 hours after which he travelled back taking 6 hours to travel back. What was his average speed for the whole journey?

- A. 84km/h  
B. 70km/h  
C. 60km/h  
D. 80km/h

35. 6th January 2020 was on Wednesday which day was 5th march the same year?

- A. Saturday  
B. Friday  
C. Thursday  
D. Sunday

36. The pie chart below shows the number of animals at Maasai Mara National Reserve.



If there are 24 000 buffalos, how many more antelopes than warthog are there?

- A. 30 000  
B. 28 000  
C. 2 000  
D. 36 000

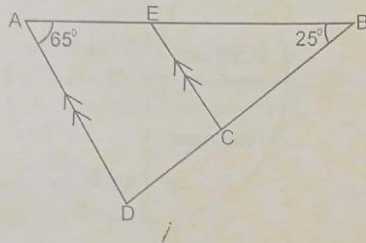
37. The table below shows the charges of sending both ordinary and express money order.

Value of the order	Commission	
	Ordinary	Express
Upto 500	30	45
501 - 1000	50	70
1001 - 2500	85	90
2501 - 5000	144	136
5001 - 10000	138	172
10001 - 20000	154	201

Wawira sent two ordinary money orders worth sh.11 500 and sh.9500. She also sent an express money order of sh.19 500. How much money did she pay at the post office?

- A. Sh.493  
B. Sh.40500  
C. Sh.593  
D. Sh.40993

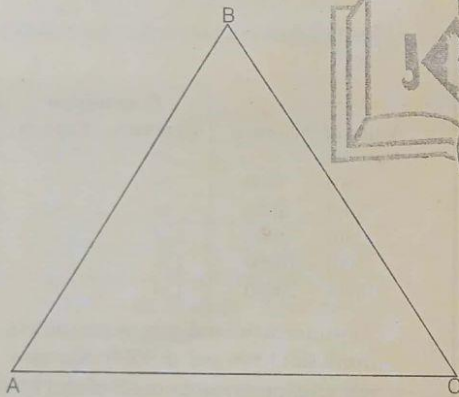
38. In the figure below  $ABD$  is a triangle. Line  $CE$  is parallel to line  $AD$ . Angle  $CAD = 65^\circ$  and angle  $EBC = 25^\circ$ .



What is the size of angle  $ECB$ ?

- A.  $90^\circ$
- B.  $80^\circ$
- C.  $55^\circ$
- D.  $65^\circ$

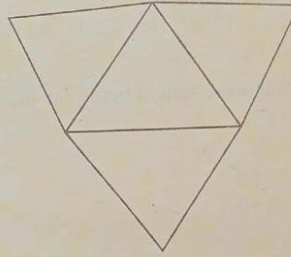
39. The triangle  $ABC$  below is drawn to scale.



What is the size of the reflex angle  $ABC$ ?

- A.  $66^\circ$
- B.  $114^\circ$
- C.  $294^\circ$
- D.  $58^\circ$

40. Below is a net of a solid.



What is the number of edges, faces and vertices when folded to form a solid?

	F	E	V
A.	4	6	4
B.	8	4	4
C.	6	4	4
D.	9	5	6

41. Which of the following sets of measurements will NOT be used to form a right angled triangle?

- A. 5cm 12cm 13cm
- B. 8cm 15cm 17cm
- C. 7cm 24cm 26cm
- D. 20cm 48cm 52cm

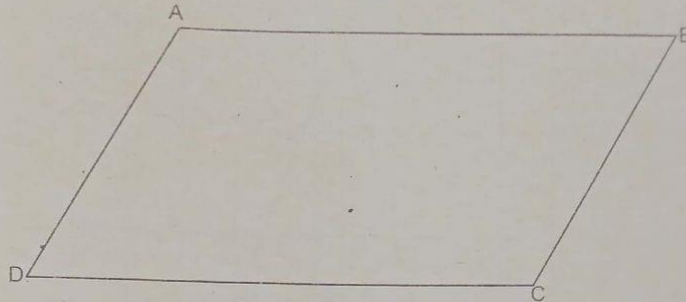
42. Njagi and Njeru shared some money in the ratio 3:4. If Njagi got sh.1750 less than Njeru, how much money in total were they sharing?

- A. Sh.5 250
- B. Sh.10 500
- C. Sh.7 000
- D. Sh.12 250

43. The mass of a text book is 0.4kg, 40 such books are packed in a carton whose empty mass is 300grammes. What is the mass of eighty such carton packed with books in kg?

- A. 1304kg
- B. 16.3kg
- C. 1280kg
- D. 16kg

44. In the quadrilateral  $ABCD$  below, construct a perpendicular from point  $A$  to meet line  $DC$  at  $X$ . Join point  $X$  and point  $B$ .



What is the size of angle  $AXB$ ?

- A.  $27^\circ$                       B.  $62^\circ$                       C.  $18^\circ$                       D.  $29^\circ$

45. Three boys Ham, Sam, and Tom shared a total of sh.2400. Sam got sh.200 more than Ham while Tom got half the total of Ham and Sam. If the amount of money received by Ham was sh. $x$ , which of the following equation can be used to find the amount received by Tom?
- A.  $2x + 400 = 2400$   
 B.  $3x + 300 = 2400$   
 C.  $3x + 600 = 2400$   
 D.  $3x + 200 = 2400$

46. A clock loses 10 seconds after every two hours. The watch was set right on Monday 9.00am. What time did it show on Saturday 9.00am?
- A. 9.20am  
 B. 9.10am  
 C. 8.50am  
 D. 8.40am

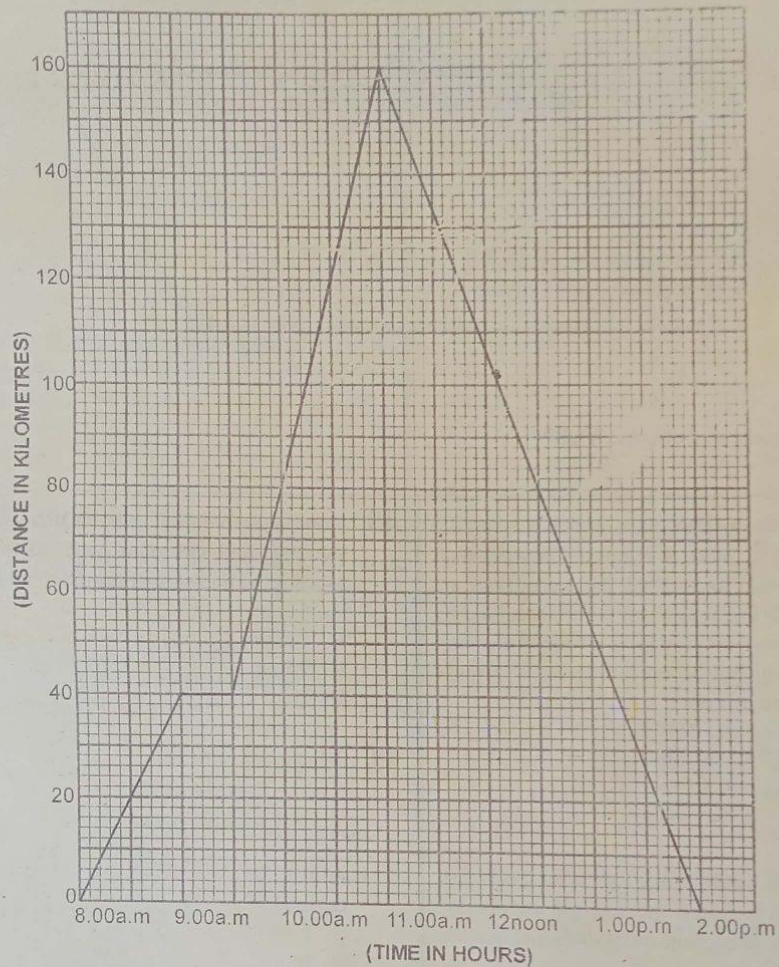
47. The length of a square plot is equal to the diameter of a circular fishpond whose circumference is 176m. What is the perimeter of the square plot?
- A. 204m  
 B. 224m  
 C. 112m  
 D. 784m

48. Construct a parallelogram  $PQRS$  such that line  $PQ=7\text{cm}$ ,  $QS=6\text{cm}$ . Angle  $SPQ = 70^\circ$ . What is the measure of the diagonal  $PR$ ?
- A. 7.5cm  
 B. 10.5cm  
 C. 9.5cm  
 D. 11cm

49. What is the value of
- $$\frac{5.7 \times 0.36 \times 4.5}{1.9 \times 0.5 \times 0.72}$$

- A. 0.135  
 B. 0.0135  
 C. 1.35  
 D. 13.5

50. The graph below shows the journey by Komen from Nandi Kericho and back a distance of 160km.



What was his average speed for the whole journey?

- A.  $106\frac{2}{3}$  km/h
- B. 80km/h
- C.  $53\frac{1}{3}$  km/h
- D. 64km/h