

## 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.** What is the area of a circle whose radius is 28cm?

- A.  $308\text{cm}^2$
- B.  $2464\text{cm}^2$
- C.  $616\text{cm}^2$
- D.  $1232\text{m}^2$

The correct answer is **B** ( $2464\text{cm}^2$ )

**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 indicated and no questions are missing.**

1. What is 30075283 written in words?
- Thirty million seventy five thousand two hundred and eighty three.
  - Three million seventy five thousand two hundred and eighty three.
  - Three hundred million seventy five thousand two hundred and eighty three.
  - Three million, seven hundred and fifty thousand two hundred and eighty three.

2. In the number 42306 what is the difference between the total value of digits 4 and 3?
- 42 300
  - 40 300
  - 39 700
  - 40 306

3. What is the 5879.998 rounded off to two decimal places?
- 5879.00
  - 5879.90
  - 5888.00
  - 5880.00

4. What is the value of  $\frac{132 - 2(23 - 12) + 33}{11}$  ?

- 15
- 143
- 13
- 165

5. Simplify the inequality below.

$$\frac{2}{5}x + 19 > 4x$$

- $x < 5\frac{5}{18}$
- $x = 5\frac{5}{18}$
- $x > 5\frac{5}{18}$
- $x > 4\frac{5}{18}$

6. What is the value of  $\frac{3}{5} - \frac{1}{4} \div \frac{1}{2} + \frac{1}{8}$  ?
- $\frac{33}{40}$
  - $\frac{14}{25}$
  - $\frac{1}{5}$
  - $\frac{9}{40}$

7. What is the next number in the sequence below?

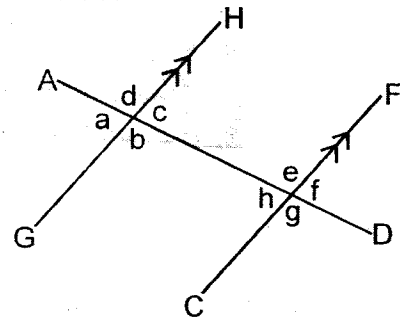
1, 3, 6, 11, 18, \_\_\_\_\_

- 27
- 29
- 31
- 33

8. What is the square root of 0.0256?

- 0.0016
- 0.016
- 0.16
- 1.6

9. Which of the following statement about the angles is true?



- Angle  $a$  is equal angle  $b$ .
- Angle  $b$  and angle  $h$  adds upto  $180^\circ$ .
- Angle  $g$  and angle  $f$  are vertically opposite angles.
- Angle  $c$  and angle  $h$  are corresponding angles.

10. What is the value of  $\frac{2x(y+z)}{xz}$  where

$$x = y = 3 \text{ and } z = 2$$

- 30
- 6
- 5
- 10

11. Wangila bought 50 pawpaws at sh.30 each and paid sh.100 for transport. During transportation 5 pawpaws got spoilt. She sold the rest at sh.40. How much profit did he make?

- A. Sh.300
- B. Sh.200
- C. Sh.1 800
- D. Sh.1 600

12. A football match started at 3.15pm. The first half lasted  $\frac{3}{4}$  hour and a 15 minutes half time. The second half lasted for 45 mins. At what time did the match end?

- A. 5:00pm
- B. 4:45pm
- C. 4:30pm
- D. 5:15pm

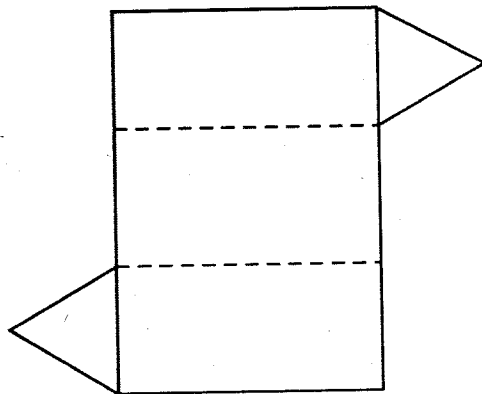
13. The table below shows the size of the shoe and the number of people who bought.

Shoe size	3	4	5	6	7	8	9
Number bought	2	3	6	12	8	9	4

Which was the modal shoe size

- A. 12
- B. 6
- C. 7
- D. 9

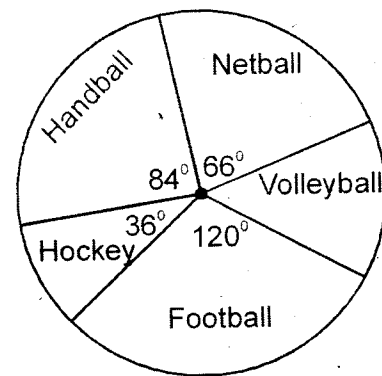
14. The figure below is a net of a solid



When folded what solid will be formed?

- A. Square prism
- B. Square pyramid
- C. Triangular prism
- D. Triangular pyramid

15. The pie chart below shows how pupils chose their favourite game at school.



If 99 pupils chose netball, how many pupils chose hockey and volleyball altogether?

- A. 135
- B. 54
- C. 81
- D. 60

16. The number of antelopes and buffaloes in Lake Nakuru National park is the ratio 5:3. If there are 2800 more antelopes than buffaloes, how many buffaloes and antelopes are in the park?

- A. 11 200
- B. 7 000
- C. 2 800
- D. 4 200

17. A salesman earns a basic salary of sh.12 000. He is also given 5% commission on all the sales he makes. In one month he sold goods worth sh.350 000. How much did he earn?

- A. Sh.17 500
- B. Sh.12 000
- C. Sh.27 500
- D. Sh.29 500

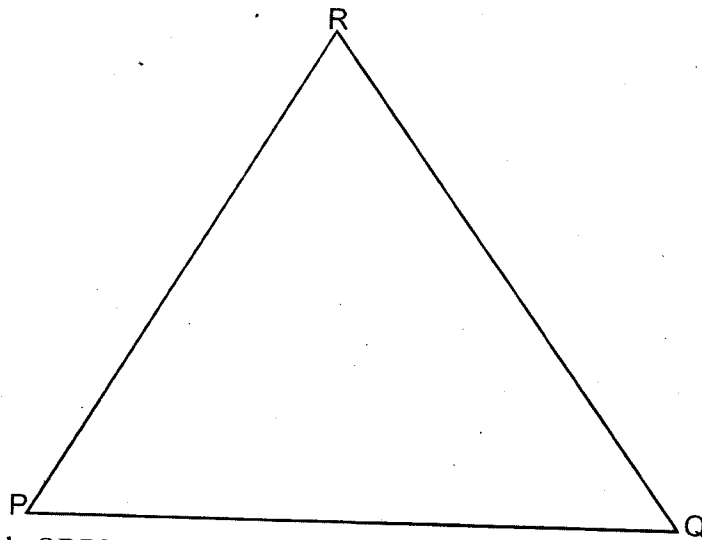
18. What is the difference of LCM and GCD of 24, 48 and 72?

- A. 144
- B. 24
- C. 168
- D. 120

19. Mwangi harvested 2400 bags of wheat. He sold 0.6 to the millers, 0.2 was sold to a neighbouring school and donated 0.5 of the remainder. How many bags of wheat was he left with?
- A. 480  
B. 240  
C. 1440  
D. 1200

20. Ochieng produced 1 200 bags of maize in the year 2020, this was 20% decrease from the year 2019. How many bags of maize did he produce in both years?
- A. 2160  
B. 960  
C. 1500  
D. 2700

21. The triangle PQR below is drawn accurately.



What is the size of angle QRP?

- A.  $59^\circ$       B.  $67^\circ$       C.  $54^\circ$       D.  $63^\circ$
22. The mean mass of 6 boys was 53kg. When the mass of the teacher is added the mean mass becomes 57kg. What is the mass of the teacher?
- A. 4kg  
B. 65kg  
C. 81kg  
D. 78kg
23. On a map, a road 3.6cm represent 1.44km. What is the scale used?
- A. 1:400  
B. 1:4000  
C. 1:40000  
D. 1:400000
24. The cost of 1kg of wheat flour increased from sh.80 to sh.120. Calculate the ratio increase?
- A. 2:3  
B. 8:12  
C. 3:2  
D. 4:6
25. Kemboi is four times as old as his son. He is six years older than his wife. The sum of their ages in 10 years to come will be 105 years. How old is the wife today?
- A. 36  
B. 40  
C. 30  
D. 46
26. What is the value of  $x$  in the equation  $6(x + 2) - 8 = 34$ ?
- A. 4  
B. 6  
C. 7  
D. 5
27. In a right angled triangle the length of hypotenuse is 170m. What are the possible lengths of the shorter sides?
- A. 80m, 160m  
B. 80m, 150m  
C. 90m, 150m  
D. 70m, 240m

28. The table below shows the charges of sending small parcels both by ordinary and express through the post office.

Weight	Ordinary	Express
Upto 100g	32	47
100g -250g	53	86
250g-500g	89	112
500g-1kg	130	164
1kg-5kg	230	325

Wangila sent two ordinary parcels of 260g and 1.5kg and 750g express parcel. How much did he pay for postage?

- A. Sh.506  
 B. Sh.449  
 C. Sh.483  
 D. Sh.436
29. A trader deposited sh.400 000 to a bank at a simple interest rate of 12% per annum. How much interest did his money earn after two years?
- A. Sh.96 000  
 B. Sh.48 000  
 C. Sh.448000  
 D. Sh.496 000

30. Which is the correct order of arranging the fraction  $\frac{3}{7}$ ,  $\frac{4}{9}$ ,  $\frac{3}{8}$  and  $\frac{5}{9}$  from the smallest to the largest?

- A.  $\frac{5}{9}$ ,  $\frac{4}{9}$ ,  $\frac{3}{7}$ ,  $\frac{3}{8}$   
 B.  $\frac{3}{8}$ ,  $\frac{3}{7}$ ,  $\frac{4}{9}$ ,  $\frac{5}{9}$   
 C.  $\frac{3}{7}$ ,  $\frac{3}{8}$ ,  $\frac{4}{9}$ ,  $\frac{5}{9}$   
 D.  $\frac{5}{9}$ ,  $\frac{3}{7}$ ,  $\frac{3}{8}$ ,  $\frac{4}{9}$

31. At Bidii primary school the population increased by 20% to 2400 in the year 2021. How many pupils were there in the year 2020?
- A. 1 800  
 B. 2 500  
 C. 2 000  
 D. 2 280

32. Below are characteristics of a quadrilateral
- (i) *Two pairs of parallel lines.*  
 (ii) *Diagonals not equal.*  
 (iii) *Diagonals bisect but not a right angle.*

The quadrilateral described above is

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

33. Mwangemi travelled at a speed of 72km/h for 5 hours from Lamu to Mombasa. He stayed at Mombasa for three hours and then drove back at a speed of 90km/h. What was the average speed for the whole journey?
- A. 80km/h  
 B. 60km/h  
 C. 84km/h  
 D. 66km/h

34. Karani bought the following items from a shop.

*2½kg sugar @ sh.120*

*1½kg cooking fat for sh.210*

*2kg ndengu @ 135*

*5 loaves of bread @ sh.50*

*1 Omo at sh.160 per 500g packet*

*2 bars of soap @ 125*

How much money did he pay for the items?

- A. Sh.1 600  
 B. Sh.1 440  
 C. Sh.1 810  
 D. Sh.1 560

35. A rectangular plot of land measures 200m by 180m. The plot is to be fenced using five strands of a wire. What is the length of the wire used?
- A. 1900m  
 B. 3800m  
 C. 760m  
 D. 1520m

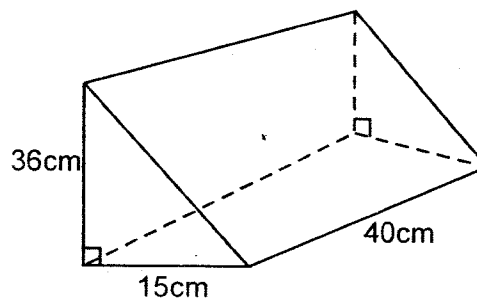
36. 24 men can do a certain job in 18 days. How much longer would it take if 6 men failed to turn up?
- 18 days
  - 6 days
  - 3 days
  - 24 days

37. Construct a triangle ABC such that line  $AB=5\text{cm}$   $AC=7\text{cm}$  and  $BC=6.5\text{cm}$ . Bisect angle ACB and let the bisector meet line AB at X.

What is the size of angle ACX?

- $22^\circ$
  - $44^\circ$
  - $63^\circ$
  - $95^\circ$
38. A cylindrical water tank has a radius of 0.7m and a height of 2.5m. How many litres does it hold when half full?
- 1925 litres
  - 7700 litres
  - 6160 litres
  - 3850 litres
39. Jalas woke up at 5:45am after sleeping for  $8\frac{1}{4}$  hours. At what time in am/pm had he gone to sleep?
- 9:30am
  - 8:30pm
  - 9:30pm
  - 8:30am

40. The figure below shows a triangular prism.



What is the surface area of the prism?

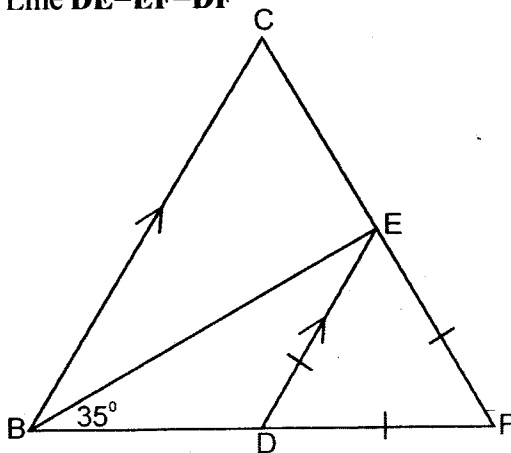
- $3600\text{cm}^2$
  - $4140\text{cm}^2$
  - $10800\text{cm}^2$
  - $5400\text{cm}^2$
41. Daisy bought a TV set for sh.10 560 after getting 12% discount. What was the marked price of the TV?
- Sh.15 000
  - Sh.10 800
  - Sh.12 000
  - Sh.13 600
42. Sasha has  $x$  oranges. This is three times what Salome has. Susan has 12 more than Sasha. If in total they have 120 oranges, what equation can be used to find the number of oranges Sasha have?
- $2\frac{1}{3}x + 12 = 120$
  - $1\frac{1}{3}x + 12 = 120$
  - $4x + 12 = 120$
  - $3x + 12 = 120$
43. Which of the following expression below is the simplest form of
- $$\frac{3(x+y) + 2(x-y)}{2(x+y) + 2y} ?$$
- |                          |                       |
|--------------------------|-----------------------|
| A. $\frac{5x+y}{2x+4y}$  | B. $\frac{5x+y}{2x}$  |
| C. $\frac{5x+5y}{2x+4y}$ | D. $\frac{5x}{2x+4y}$ |

44. The marked price of a generator is sh.24 000. The hire purchase price is 50% more than the marked price. Amina bought it on hire purchase paying a deposit of sh.9 000 and the rest in 12 equal monthly instalment. How much was each instalment?
- A. Sh.2 000  
 B. Sh.2 250  
 C. Sh.3 000  
 D. Sh.2 500

45. A family consumes 3-500ml packets of milk daily. How many litres did they consume in the month of June, July and August year 2020?
- A. 136.5l  
 B. 139.5l  
 C. 135l  
 D. 138l

46. What is the value of  $\frac{a(2b+3c)}{bc} + 4a$  if  $a=b+3$ ,  $c=2b$  and  $b=2$
- A. 10  
 B. 20  
 C. 30  
 D. 24

47. On the figure below line BC is parallel to line CE. Angle DBE=35°. Line DE=EF=DF



- What is the size of angle CEB
- A. 60°  
 B. 120°  
 C. 95°  
 D. 115°

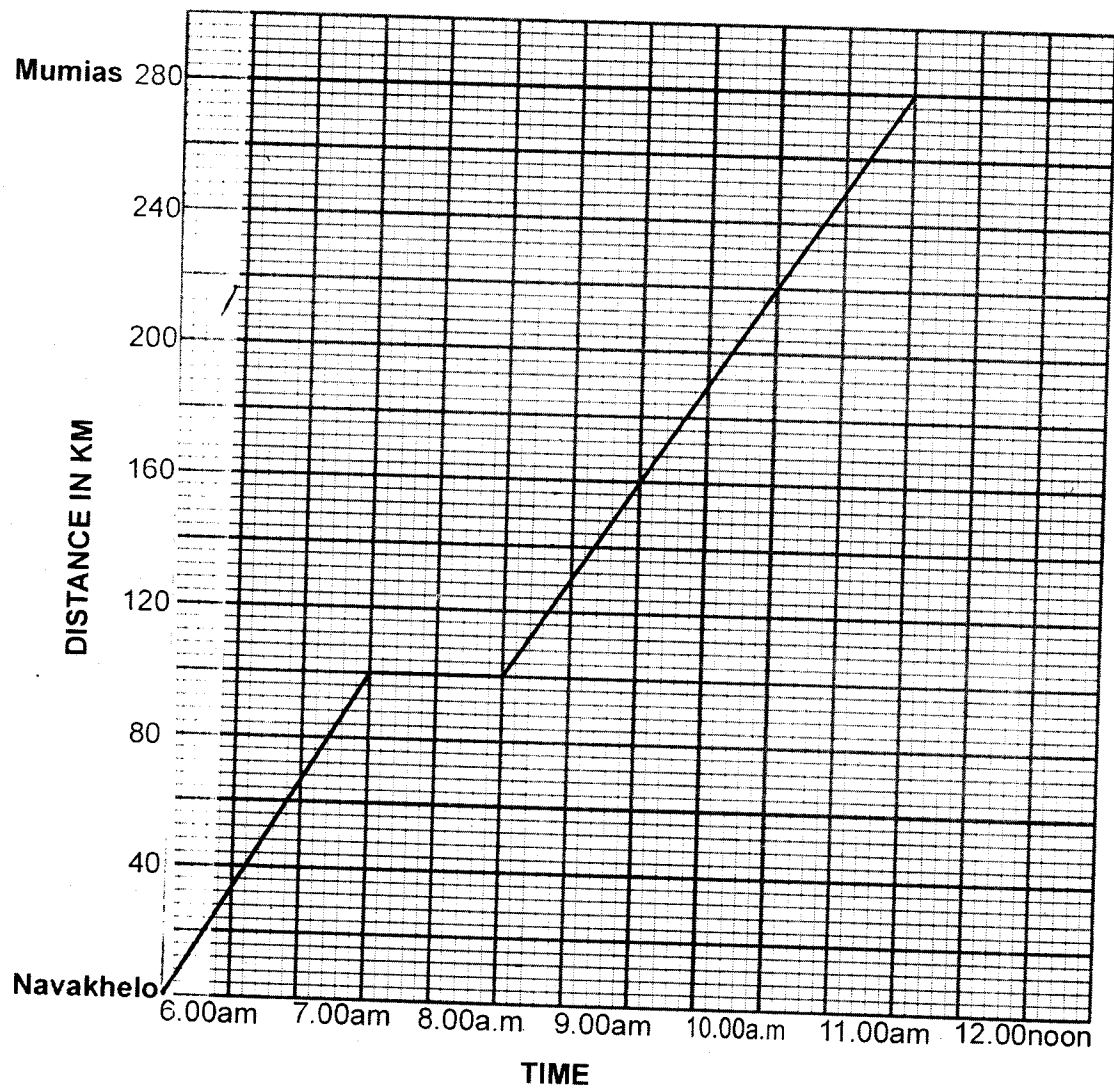
48. What is the value of

$$\frac{2.8 + 3 - 0.5 \times 3.2}{0.4}$$

- A. 4.2  
 B. 1.8  
 C. 10.5  
 D. 25.9

49. The area of a square is 4761m<sup>2</sup>. What is the perimeter of the square?
- A. 138  
 B. 71  
 C. 69  
 D. 276

50. The graph below shows the journey by Omwami from Navakholo to Mumias. After travelling for  $1\frac{1}{2}$  hours he stopped for 1 hour to repair a puncture. He later continued with the journey arriving at 11.30pm.



What was his speed after repairing the puncture?

- A.  $33\frac{1}{3}$  km/h
- B. 65km/h
- C.  $50\frac{10}{11}$  km/h
- D. 60km/h