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KENYA NATIONAL EXAMINATIONS

202503

YEAR - 2020

—MATHEMATICS—

2 hours

READ THESE INSTRUCTIONS CAREFULLY

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

HOW TO USE THE ANSWER SHEET

4. Use an ordinary pencil only.
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 (ie. 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 Questions 1 - 50, four answers are given. The answers are lettered **A, B, C, D** in each case only **ONE** of the four answers is correct. Choose the correct answer.
10. On the answer sheet show the correct answer by drawing a **dark line** inside the box in which the letter you have chosen is written.

Example

In the question booklet

19. What is the square of **0.25**?

A. 2.5

B. 0.0625

C. 0.0025

D. 0.625

The correct answer is **B**

19. [A] **B** [C] [D]

In the set of boxes numbered **19**, the box with 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.

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This question paper consists of 8 printed pages

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TURN OVER

1. Which one of the following is 47665210 in words?

- A. Forty seven million, six sixty five thousand two hundred and ten.
- B. Four million seven hundred and sixty five thousand two hundred and ten.
- C. Forty seven million six hundred and sixty five thousand two hundred and ten.
- D. Forty seven million six hundred and fifty six thousand two hundred and one.

2. What is the difference between the largest number and the smallest number formed by the digits 4, 5, 1, 0, 2?

- A. 43965
- B. 55455
- C. 52965
- D. 54455

3. Work out twice the value of:
 $12 - (196 \div 14) \times 2 + 26$

- A. 10
- B. 20
- C. 44
- D. 22

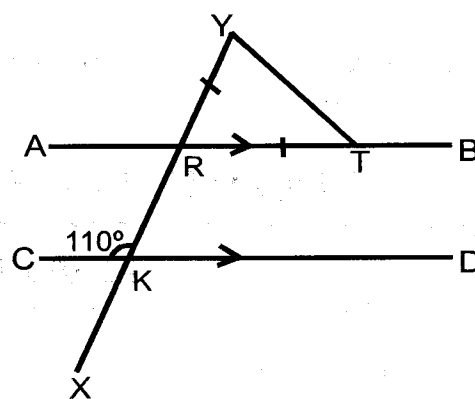
4. Round off 499.9972 to the nearest hundredths.

- A. 499.99
- B. 499.00
- C. 500
- D. 500.00

5. What is the largest capacity of a bottle that can be used to completely empty three containers each holding 48L, 60L and 72L without a remainder?

- A. 24L
- B. 12L
- C. 720L
- D. 360L

6. In the figure below line AB is parallel to line CD and XY is a straight line, angle CKR = 110° , line RT = RY.



What is the measure of angle YTB?

- A. 125°
- B. 55°
- C. 70°
- D. 110°

7. 24 workers can take 30 days to complete the construction of a bridge. How many more days will it take to complete the work if 4 workers failed to turn up?

- A. 36
- B. 32
- C. 2
- D. 6

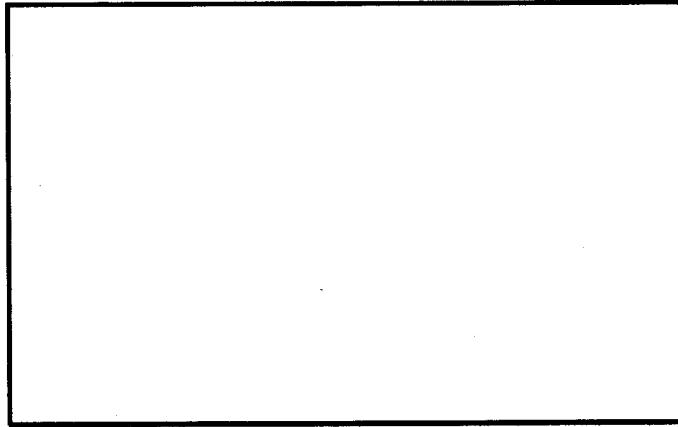
8. A man deposited sh 60000 in a bank. After $2\frac{1}{2}$ years he withdrew a total of 68250. At what rate per annum was the money earning the interest?

- A. $5\frac{1}{2}\%$
- B. 5%
- C. 11.4%
- D. $7\frac{1}{2}\%$

9. Njuguna and Mercy shared the profit of sh 20000 in the ration 3:1. How much did Njuguna get?

- A. Sh 5000
- B. Sh 10000
- C. Sh 15000
- D. Sh 12000

10. A grazing farm in a rectangular shape was drawn using a scale of 1:50000. Calculate the distance round the rectangular farm as accurately drawn below.



- A. 13m
 B. 26m
 C. 1300000m
 D. 13km

11. Electric poles were erected to connect electricity between two towns 3.75km apart. If the poles were placed 50m apart, how many poles were used?

- A. 75
 B. 76
 C. 3700
 D. 38

12. What is the value of

$$\frac{1}{2} \text{ of } 4\frac{1}{2} \div 2\frac{1}{3} \times \frac{7}{9} - \frac{2}{5} ?$$

- A. $\frac{7}{20}$
 B. $\frac{8}{20}$
 C. $\frac{3}{4}$
 D. $\frac{9}{20}$

13. In a meeting there were 7354 people. The number of men was 1022 more than that of women. How many men attended the meeting?

- A. 6332
 B. 5210
 C. 4188
 D. 3166

14. Josphine bought the following items from a shop.

$2\frac{1}{2}$ bars of soap @ sh 120

$1\frac{1}{4}$ kg of sugar @ sh 320

2 - 2kg packets of flour at sh 80

0.5kg of rice at sh 80

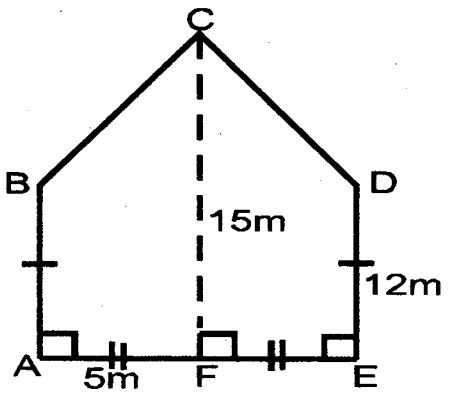
How much did she pay for the items?

- A. Sh 1060
 B. Sh 980
 C. Sh 1100
 D. Sh 900

15. A square piece of land has an area of 12.25 ha. It was fenced round using 5 strands of wire. What is the length of the wire used?

- A. 350m
 B. 7000m
 C. 1400m
 D. 70m

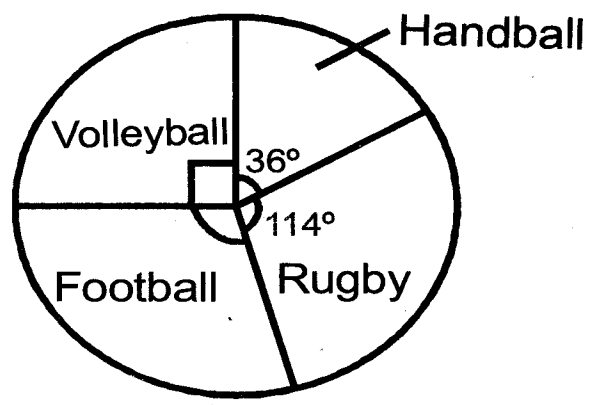
16. The figure below represents a gate. Line $AB = ED = 12\text{m}$, line $AF = FE = 5\text{m}$, line $FC = 15\text{m}$.



Both sides of the gate were painted. Calculate the area that was painted.

- A. 67.5m^2
 - B. 120m^2
 - C. 135cm^2
 - D. 270m^2
17. Given that $m = 12$, $n = \frac{1}{2}m$ and $w = 5$. What is the value of:
- $$\frac{1}{2}(2m + nw) - n^2 + 2m?$$
- A. 15
 - B. 27
 - C. 23
 - D. 21
18. Jerome paid sh 840 for a shirt after he was given a discount of 30%. How much more was the marked price than the selling price?
- A. Sh 1200
 - B. Sh 1140
 - C. Sh 300
 - D. Sh 360
19. Tamara can sweep a room in 8 minutes, Jane can sweep the same room in 12 minutes. How long would the two girls take to sweep the same room together?
- A. 4 min 48 seconds
 - B. 20 minutes
 - C. 5 minutes
 - D. 4 minutes $\frac{4}{5}$ seconds

20. The pie chart below shows how pupils chose their favourite games and sports.



If 18 pupils chose football, how many pupils were there altogether in that class?

- A. 36
 - B. 48
 - C. 54
 - D. 60
21. A motorist left town A for town B a distance of 120km at a speed of 60km/h. After 30 minutes he got a puncture which took 30 minutes to repair. After repair he travelled the remaining distance at a speed of 45km/h. What was his average speed for the whole journey?
- A. $52\frac{1}{2}\text{km/h}$
 - B. 40km/h
 - C. 60km/h
 - D. 45km/h
22. Find the value of x in $\frac{x - 1}{5} + \frac{3x + 3}{4} = 11$
- A. 6
 - B. 8
 - C. 9
 - D. 11

23. The table below shows the amount of milk produced by cows in the Okoloi's farm in one week.

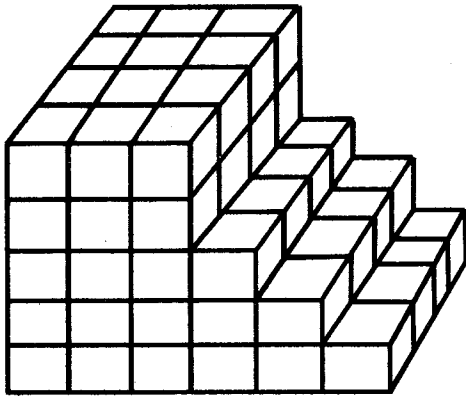
Days	Mon	Tue	Wed	Thur	Fri	Sat
Amount in litres	—	73	—	78	80	75

The average amount of milk produced in the six days was 75 litres. If 5 more litres were produced on Monday than on Wednesday. How many litres were produced on Monday?

- A. 74
B. 69
C. 143
D. 138
24. A closed cylinder has a diameter of 28cm and a height of 30cm. What is the surface area when open at the top?
- A. 2640cm^2
B. 3256cm^2
C. 1184cm^2
D. 3872cm^2
25. Mr Mugo spends 25% of his salary on food, 35% on rent, 16% on fees and saves the rest which is sh 6000. What is his monthly salary?
- A. Sh 24000
B. Sh 18000
C. Sh 25000
D. Sh 30000
26. A car travelling at a speed of 72km/h took one minute to cross a tunnel. How long is the tunnel in kilometres?
- A. 1200
B. 1.2
C. 7.2
D. 72

27. Construct triangle EFG in which angle $EFG = 60^\circ$, line $EF = 6\text{cm}$ and $FG = 7\text{cm}$. Draw a circle touching the 3 vertices of the triangle. What is its radius?
- A. 7.6cm
B. 2.1cm
C. 4.2cm
D. 3.8cm
28. The temperature of ice was 15°C below the melting point. After heating for 5 minutes the temperature rose to 48°C . What was the rise in temperature?
- A. 48°C
B. 33°C
C. 63°C
D. 38°C
29. A room measured 8m in length, 6m in width and 5m in height. Windows and doors covered 14m^2 . If the inner walls were painted what was the area painted?
- A. 140m^2
B. 236m^2
C. 126m^2
D. 222m^2
30. The sum of the area of the two squares formed on the two shorter sides of a right - angled triangle is 42.25cm^2 . If its base length is 2.5cm. Calculate height of the triangle?
- A. 6.5cm
B. 4cm
C. 8cm
D. 6cm

31. How many cubes are used to make the stack below?



- A. 88
B. 84
C. 80
D. 120
32. In a school, lessons take 45 minutes. The lessons start at 8:20 am and ends at 3:20 pm. All the breaks take $2\frac{1}{2}$ hours. How many lessons are there in a day?
- A. 7
B. 8
C. 6
D. 9
33. Joseph is twice as old as Sarah and Hillary is 6 years younger than Joseph. If Sarah is y years. Write an expression to show the sum of their ages in two years time?
- A. $5y + 6$
B. $5y - 6$
C. $5y$
D. $5y + 12$
34. Work out $45.6 + \frac{0.24 \times 7.2}{0.36 \times 0.96} - 4.5$

- A. 46.1
B. 123.92
C. 63.62
D. 41.1

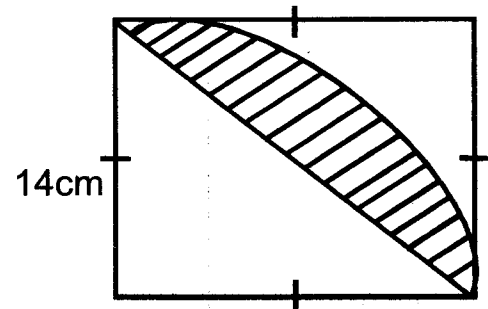
35. Simplify: $\frac{2}{5}(25x - 20) - 3(\frac{1}{3}x + 1)$

- A. $11x - 11$
B. $11x - 5$
C. $9x - 11$
D. $9x - 5$

36. The sum of three consecutive odd numbers is 111. Which is the smallest number among them?

- A. 36
B. 35
C. 37
D. 39

37. What is the area of the shaded part in the figure below?



- A. 56cm^2
B. 112cm^2
C. 196cm^2
D. 98cm^2

38. In a class two fifth are boys. If there are 18 girls, how many more girls than boys are in that class?

- A. 12
B. 3
C. 9
D. 6

39. A trader bought 500 oranges for sh 4000. During the transportation 20 of them got spoilt. She sold the remaining in piles of 3 at sh 30. What percentage profit did she make?

- A. 10%
B. 25%
C. 20%
D. 15%

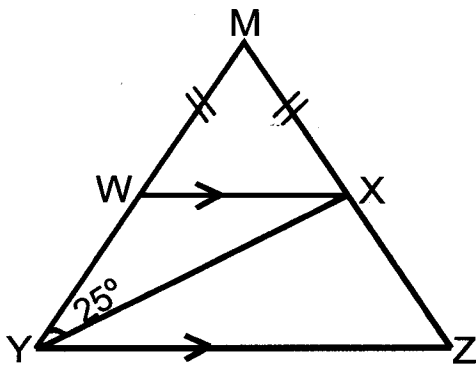
40. A family uses three - 200ml packets of milk everyday. How many litres of milk does the family use in the month of January and February 2020?

- A. 36
- B. 360
- C. 18
- D. 35.4

41. After a salary increase of 20%, Jane now earns sh 10728. How much did she earn before the increase?

- A. Sh 7152
- B. Sh 8940
- C. Sh 1788
- D. Sh 12873.60

42. In the figure below line WX is parallel to YZ. Line YX bisect angle WYZ. Line MW = MX, angle WYX = 25°.



Find angle YXZ.

- A. 50°
- B. 75°
- C. 105°
- D. 80°

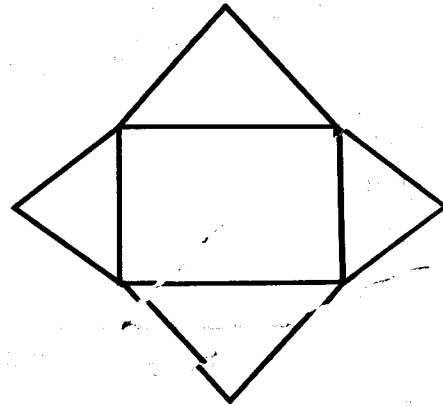
43. The hire purchase price of a TV set is 15% more than the marked price. The marked price is sh 20000. When buying through hire purchase, a deposit is required followed by monthly instalments of sh 1050 for 18 months. How much deposit is required?

- A. sh 1100
- B. sh 2100
- C. sh 3100
- D. sh 4100

44. What is 12.5% as a fraction in simple form?

- A. $\frac{1}{4}$
- B. $\frac{1}{80}$
- C. $\frac{1}{8}$
- D. $\frac{1}{40}$

45. The net below was folded to form a solid.



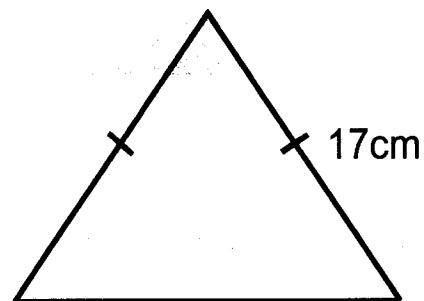
What is the sum of faces and vertices of the solid formed?

- A. 11
- B. 10
- C. 12
- D. 9

46. What is the sum of the next two numbers in 7, 14, 25, 38, _____, _____

- A. 129
- B. 124
- C. 123
- D. 127

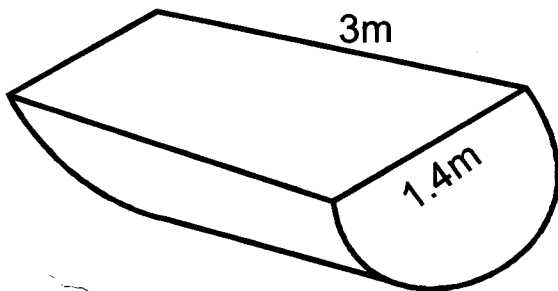
47. The perimeter of the figure below is 50cm.



Calculate its area.

- A. 60cm²
- B. 120cm²
- C. 80cm²
- D. 90cm²

48. What is the capacity of the through drawn below in dl?

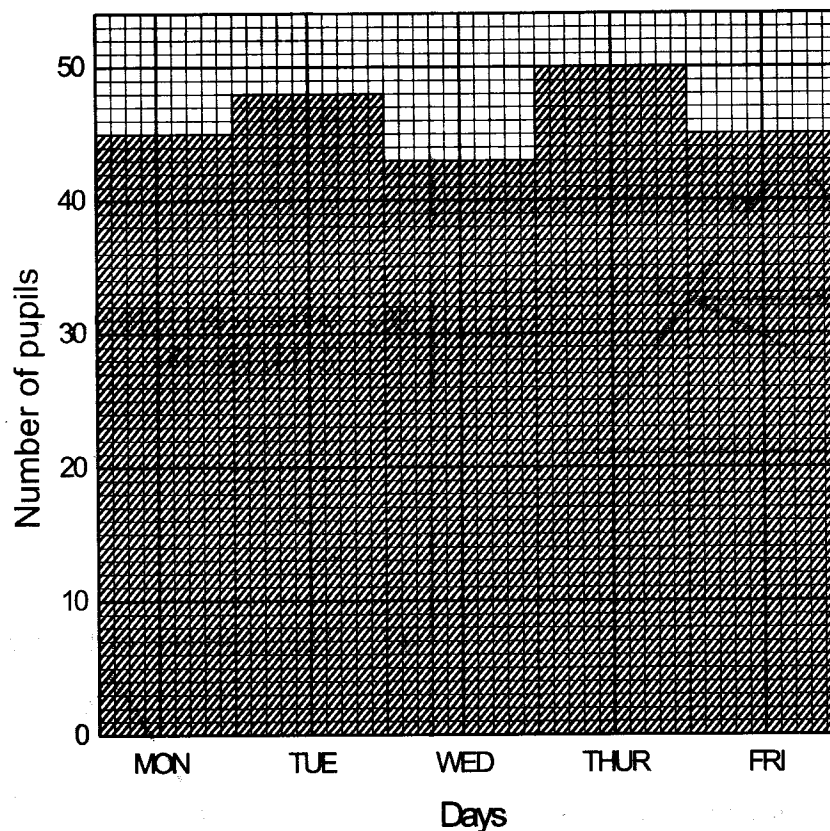


- A. 2.31
B. 2310
C. 231
D. 23100

49. A lorry was loaded with 40 bags of beans each weighing 110kg. When half of the load was off loaded, the lorry weighed 5.7 tonnes. What is the mass of the empty lorry?

- A. 3.5t
B. 3t
C. 3.2t
D. 3.7t

50. The graph below shows the number of pupils who were present in a class of 50 pupils in one week.



What is the average number of pupils who were present that week?

- A. 231
B. 3.8
C. 19
D. 46.2