KCPE 2001

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 this 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 the 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, 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:

    24. The price of sugar increased from sh. 40 to sh. 50 per kg. What was the percentage increase?
    - A. 125%
    - B. 10%
    - C. 25%
    - D. 20%

    The correct answer is C (25%).

    On the answer sheet:

    4 (A) (B) (C) (D) 14 (A) (B) (C) (D) 24 (A) (B) ● (D) 34 (A) (B) (C) (D) 44 (A) (B) (C) (D)

    In the third set, the box with the letter C 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 14 printed pages and 2 blank pages.

1. Which one of the following is six million, eighty five thousand, three hundred and seven?
   A. 6085037
   B. 6805037
   C. 6085307
   D. 6850307

2. What is 4990678 rounded off to the nearest thousand?
   A. 4990000
   B. 4990700
   C. 4991000
   D. 5000000

3. What is the next number in the pattern 2, 6, 11, 17, _____?
   A. 28
   B. 24
   C. 23
   D. 21

4. What is the value of 0·499 + 12·3 correct to 2 decimal places?
   A. 13·00
   B. 12·80
   C. 12·79
   D. 12·799

5. Sara and Lucia shared a piece of cloth such that Lucia got three times as much as Sara. What fraction of the cloth did Sara get?
   A. $\frac{3}{4}$
   B. $\frac{1}{3}$
   C. $\frac{1}{3}$
   D. $\frac{1}{4}$

6. What is the value of
   $$\frac{3}{4}\left(\frac{1}{2} + \frac{2}{5} - \frac{1}{3}\right) - \frac{3}{5} \times \frac{4}{8} = ?$$
   A. $\frac{2}{5}$
   B. $\frac{22}{40}$
   C. $1\frac{1}{5}$
   D. $1\frac{19}{20}$

7. A shopkeeper bought 10 cartons of milk. A carton had 72 packets each of 500 ml.
   How many litres of milk were bought by the shopkeeper?
   A. 360 000 *l*
   B. 36 000 *l*
   C. 3 600 *l*
   D. 360 *l*

8. What is the place value of the digit 5 in the number 4 573 261?
   A. Hundred thousands
   B. Five hundred thousands
   C. Millions
   D. Five millions

9. The diagram below shows three lines which intersect to form triangle ABC.
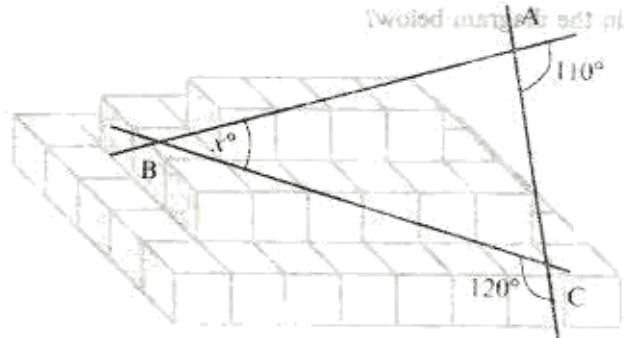
   What is the value of *x*?
   A. 50°
   B. 60°
   C. 70°
   D. 130°

10. The table below represents arrival and departure times of buses from a company serving Isiolo-Nairobi route.

Towns	Arrival Time	Departure Time
Isiolo		6.00 a.m.
Nanyuki	8.30 a.m.	9.00 a.m.
Nyeri	10.15 a.m.	10.30 a.m.
Karatina	11.15 a.m.	11.25 a.m.
Sagana	12.10 a.m.	12.20 p.m.
Murang'a	12.50 a.m.	1.00 p.m.
Thika	2.45 p.m.	3.00 p.m.
Nairobi	4.00 p.m.	

   How long does a bus take to travel from Nanyuki to Sagana?
   A. 3 h 50 min
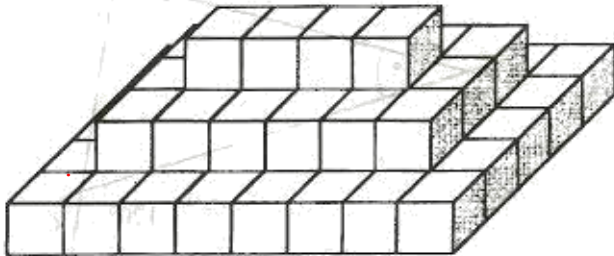   B. 3 h 40 min
   C. 3 h 20 min
   D. 3 h 10 min

13

11. A triangular plot measuring 7·5 metres by 12·5 metres by 15 metres is to be fenced.

If the posts are to be 2·5 metres apart, how many posts are needed?
A. 35
B. 17
C. 15
D. 14

12. How many bricks are used to make the pile shown in the diagram below?

A. 62
B. 48
C. 28
D. 24

13. Mwamburi bought a T.V. set on hire purchase terms. He paid a deposit of sh. 2000. The remaining amount was paid in 5 equal monthly instalments. He paid a total of sh. 9200.
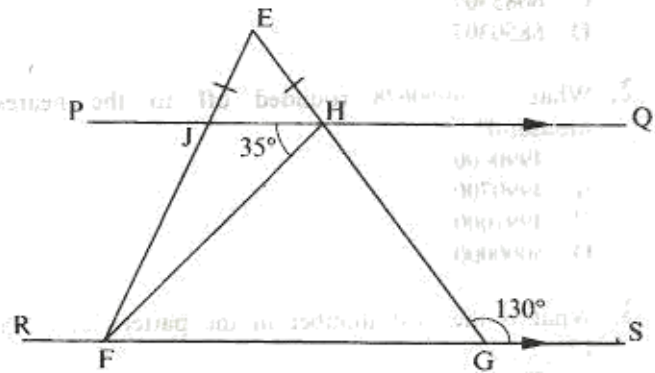
How much was each monthly instalment?
A. sh. 2240
B. sh. 1840
C. sh. 1440
D. sh. 400

14. What is the value of

$$\frac{0·48 \times 0·0135}{0·016}?$$

A. 40·5
B. 4·05
C. 0·405
D. 0·0405

15. In the figure below, lines PQ and RS are parallel. Lines EJF and EHG are straight. Lines EJ and EH are equal. Angle FHJ = 35° and angle HGS = 130°

What is the size of angle JFH?
A. 80°
B. 50°
C. 45°
D. 15°

16. The charges for sending an inland telegram were as follows:

The first 10 words or part thereof sh. 10.
All extra words sh. 1 each.
A commission of 15% on the total was charged.

What was the cost of sending the following telegram?

GAD KILOVI BOX 200 MALABA COME NAKURU URGENTLY NEKESA
A. sh. 12·65
B. sh. 11·50
C. sh. 10·35
D. sh. 10

17. There were 210 blue cars, 168 red cars, 336 white cars and 126 yellow cars in a car park.

If a pie-chart was drawn to represent this information, what angle would represent the yellow cars?
A. 90°
B. 54°
C. 72°
D. 144°

18. Musa, Tom and Sam scored goals for their team during a football match. Musa scored n goals while Sam scored twice as many goals as Musa. Tom scored two goals less than Sam.

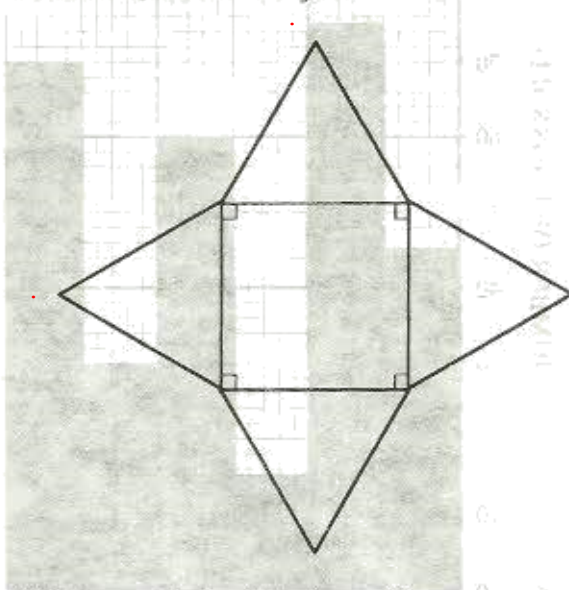What was their total score?
A. 5n – 2
B. 2n – 2
C. 3n – 2
D. 3n + 2

19. What is the square root of $7\frac{9}{16}$?

A. $2\frac{3}{4}$

B. $1\frac{3}{8}$

C. $\frac{11}{16}$

D. $7\frac{3}{4}$

20. The figure below shows a net made up of a square and four equilateral triangles.

Which one of the following solids can be formed from this net?

A. Square prism

B. Triangular prism

C. Square pyramid

D. Triangular pyramid

21. Flour is packed in 2·5 kg packets. If the weight of flour in the packets is increased by 25%, what would be the new weight of the packet?

A. 3·125 kg

B. 2 kg

C. 1·875 kg

D. 0·625 kg

22. What is the value of $\dfrac{2s+r}{q}$, if $q = 4$, $r = 2q + 1$ and $s = r + 2$?

A. 5

B. $6\frac{3}{4}$

C. 7

D. $7\frac{3}{4}$

23. Moki had 190 fifty shilling-notes. He changed sh. 6000 into one thousand shilling-notes and the rest into five hundred shilling-notes.

How many five hundred shilling-notes did he get?

A. 9500

B. 19

C. 3500

D. 7

24. On a map drawn to the scale 1:500 is a plot of land in the shape of a trapezium whose parallel sides measure 5 cm and 2 cm. The perpendicular distance between the parallel sides is 4 cm.

What is the actual area of the plot in square metres?

A. 35 000

B. 3 500

C. 350

D. 35

25. Three factories Buka, Sakono and Rama produce sugar in one hundred kilogramme bags daily. Buka produces three times as much as Rama. Sakono produced two times as much as Rama.

If Sakono produces 500 bags, how many tonnes altogether do the three factories produce daily?
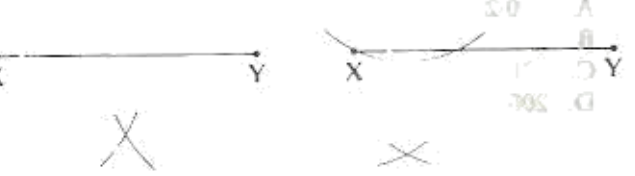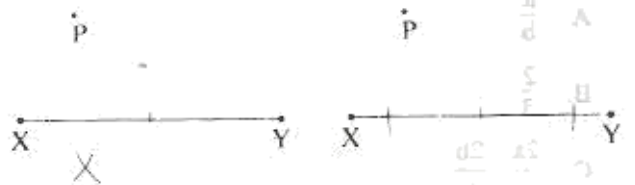
A. 50

B. 75

C. 150

D. 300

6. A dealer paid sh. 15 000 to an agent as commission for the sale of a car. The commission was 2% of the price.

How much money did the dealer remain with from the sale of the car?

A. sh. 1 470 000

B. sh. 765 000

C. sh. 750 000

D. sh. 735 000

27. Which one of the following diagrams shows arcs that lead to the construction of a perpendicular from point P to line XY?

28. Asha deposited sh. 4800 in a bank which paid interest at the rate of 12% p.a. How much did she have in the bank after six months?
- A. sh. 288
- B. sh. 5088
- C. sh. 5376
- D. sh. 8256

29. The figure below is made up of two semi-circles joined by straight lines.
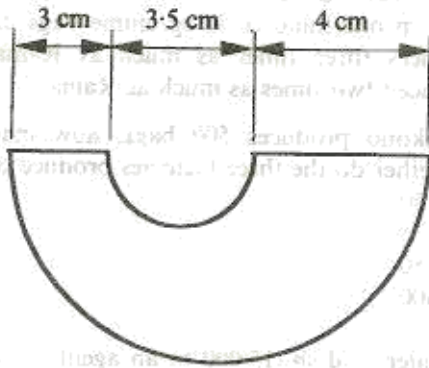

What is the perimeter of the figure?

(Take $\pi = \frac{22}{7}$)
- A. 18 cm
- B. 22 cm
- C. 29 cm
- D. 51 cm

30. Which one of the following expressions is the simple form of
$$\frac{2(a+2b)+a-4b}{4(2b-a)-5b+4a}?$$
- A. $\frac{a}{b}$
- B. $\frac{2}{3}$
- C. $\frac{2a-2b}{2a-b}$
- D. $\frac{3a-2b}{3b+3a}$

31. A rectangular tank is filled with 6 000 litres of water. The base area of the tank is 30 000 square centimetres. What is the height of the tank in metres?
- A. 0·2
- B. 2
- C. 20
- D. 200

32. The bar graph below shows the number of eggs sold by Mutiso in six days. The highest number of eggs sold was 75.
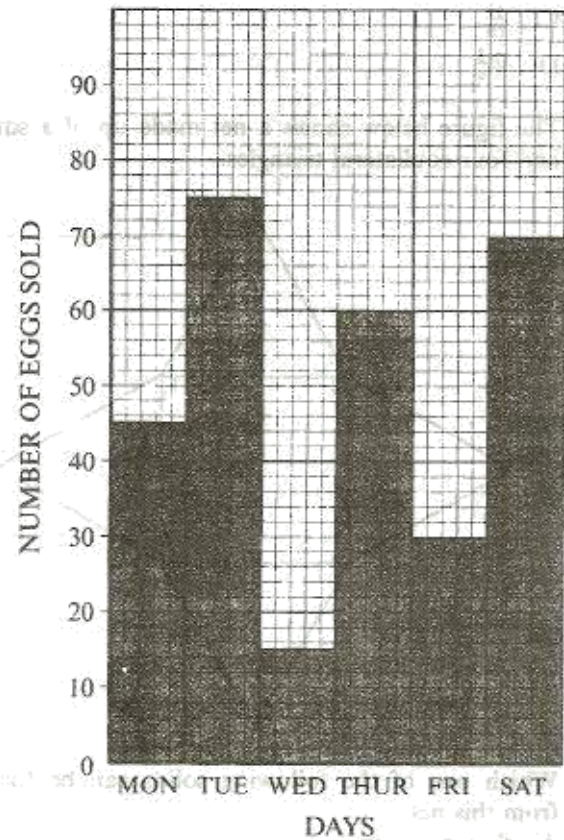

In which three consecutive days was the total number of eggs sold the highest?
- A. Tue, Wed, Thur
- B. Mon, Tue, Wed
- C. Thur, Fri, Sat
- D. Wed, Thur, Fri

33. Ali paid sh. 3700 for a radio after getting a discount of $7\frac{1}{2}$%. How much more would he have paid had he been given a discount of 5%?
- A. sh. 100
- B. sh. 200
- C. sh. 3800
- D. sh. 4000

34. A factory hired 48 labourers to complete a job in 24 hours. If 12 labourers failed to turn up for the job, how many more hours did those who turned up take to complete the job?
- A. 8
- B. 32
- C. 48
- D. 72

16

35. Triangle ABC, shown below, has been drawn accurately.
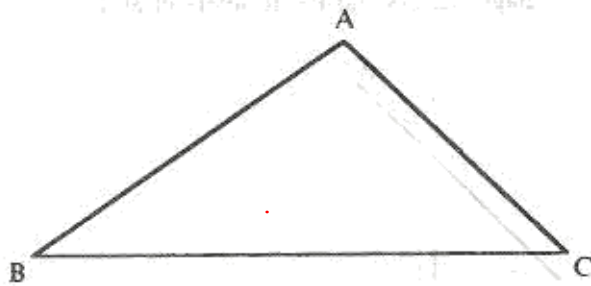
What is the size of angle CAB?

A. 35°
B. 44°
C. 79°
D. 101°

36. Maria sat for ten subjects in an examination. Her marks in nine subjects, excluding science, was as follows:

Mathematics 78, Kiswahili 81, GHC 77, Religious Education 69, English 73, Art and Craft 60, Agriculture 52, Business Education 60, and Home Science 55.

If her total marks in the ten subjects was 680, what was her median mark?

A. 60
B. 68
C. 71
D. 75

37. Atieno bought 2 kg meat @ sh. 135, 1 kg sugar for sh. 48, 3 kg rice @ sh. 42 and $\frac{1}{2}$ kg salt for sh. 12. She paid for the items with a sh. 500 note.

What balance did she get?

A. sh. 456
B. sh. 263
C. sh. 50
D. sh. 44

38. A closed cylindrical tank has a radius of 1·05 m and a height of 2 m. What is the surface area of the tank?

(Take $\pi = \frac{22}{7}$)

A. 20·13 m²
B. 16·665 m²
C. 13·2 m²
D. 6·93 m²

39. In the figure below EFGH is a rhombus. Angle EFO = 26°.
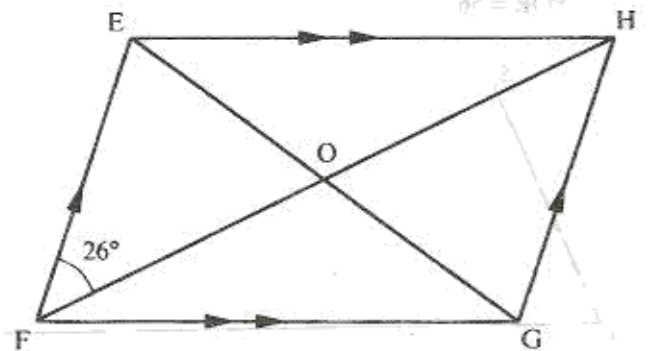
What is the size of angle OGH?

A. 128°
B. 64°
C. 52°
D. 36°

40. The table below shows the rates for sending letters and post cards through a post office in 1998.

Type of Article	Weight	Charge shs. cts.
Letters (Limit of weight 2 kg)	Not over 20 g	14 · 00
	„ 50 g	17 · 00
	„ 100 g	18 · 00
	„ 250 g	28 · 00
	„ 500 g	46 · 00
	„ 1 kg	75 · 00
	„ 2 kg	110 · 00
Post cards	Each	12 · 00

Amina sent the following letters and post cards:

Three letters each weighing 49 g
One letter weighing 150 g
Five letters each weighing 800 g
One letter weighing 1·5 kg
Two post cards

How much did she pay for the postage?

A. sh. 599
B. sh. 588
C. sh. 564
D. sh. 242

41. Kantai bought 200 chicken whose average weight was 1·5 kg. The buying price per kilogram was sh. 150. He then sold each chicken for sh. 250.

What percentage profit, to the nearest whole number, did he make?

A. 10%
B. 11%
C. 67%
D. 90%

42. Below is part of the construction of a trapezium PQRS. Complete the construction such that angle PQR = 56°.
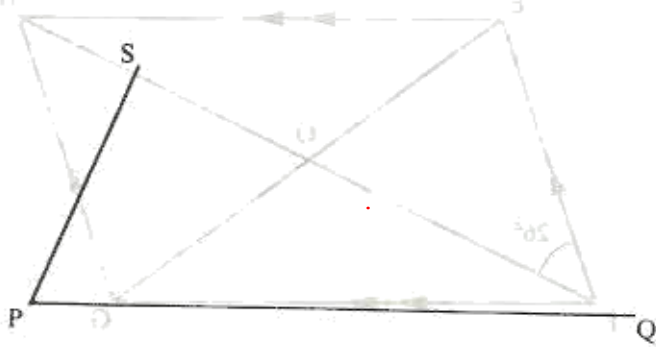
What is the length of the side RS?
A. 8·0 cm
B. 7·3 cm
C. 4·5 cm
D. 3·5 cm

43. In a school, one bell rings after every 30 minutes while the other rings after every 35 minutes. If the two bells rang together at 8.15 a.m., at what time did they ring together next?
A. 11.45 a.m.
B. 3.30 a.m.
C. 9.20 a.m.
D. 1.45 a.m.

44. A circular tank of radius 1·4 metres and height 2 metres is full of water. How much water, in litres, is in the tank?

(Take $\pi = \frac{22}{7}$)
A. 17 600
B. 12 320
C. 6 160
D. 12·32

45. A plot of land is in the shape of a right angled triangle. The length of the longest side measures 26 metres while one of the shorter sides measures 10 metres. What is the area of the plot in square metres?
A. 60
B. 120
C. 130
D. 240

46. In a function, the number of women was twice that of men. The number of children was half the total number of men and women. The function was attended by 270 people. How many children attended the function?
A. 90
B. 120
C. 180
D. 60

47. The diagram below is an incomplete parallellogram PQRS. Complete the parallelcgram and draw diagonals QS and PR to intersect at T.
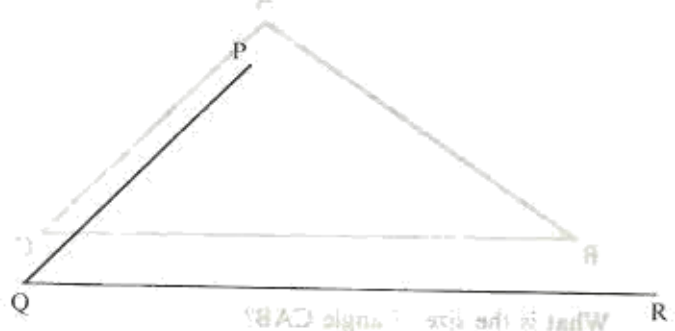
What is the size of angle PTQ?
A. 31°
B. 43°
C. 106°
D. 137°

48. A car travelling from town A to town B at an average speed of 80 km/h took 54 minutes. Another car took 40 minutes to travel the same distance. What was the difference in their speeds in km/h?
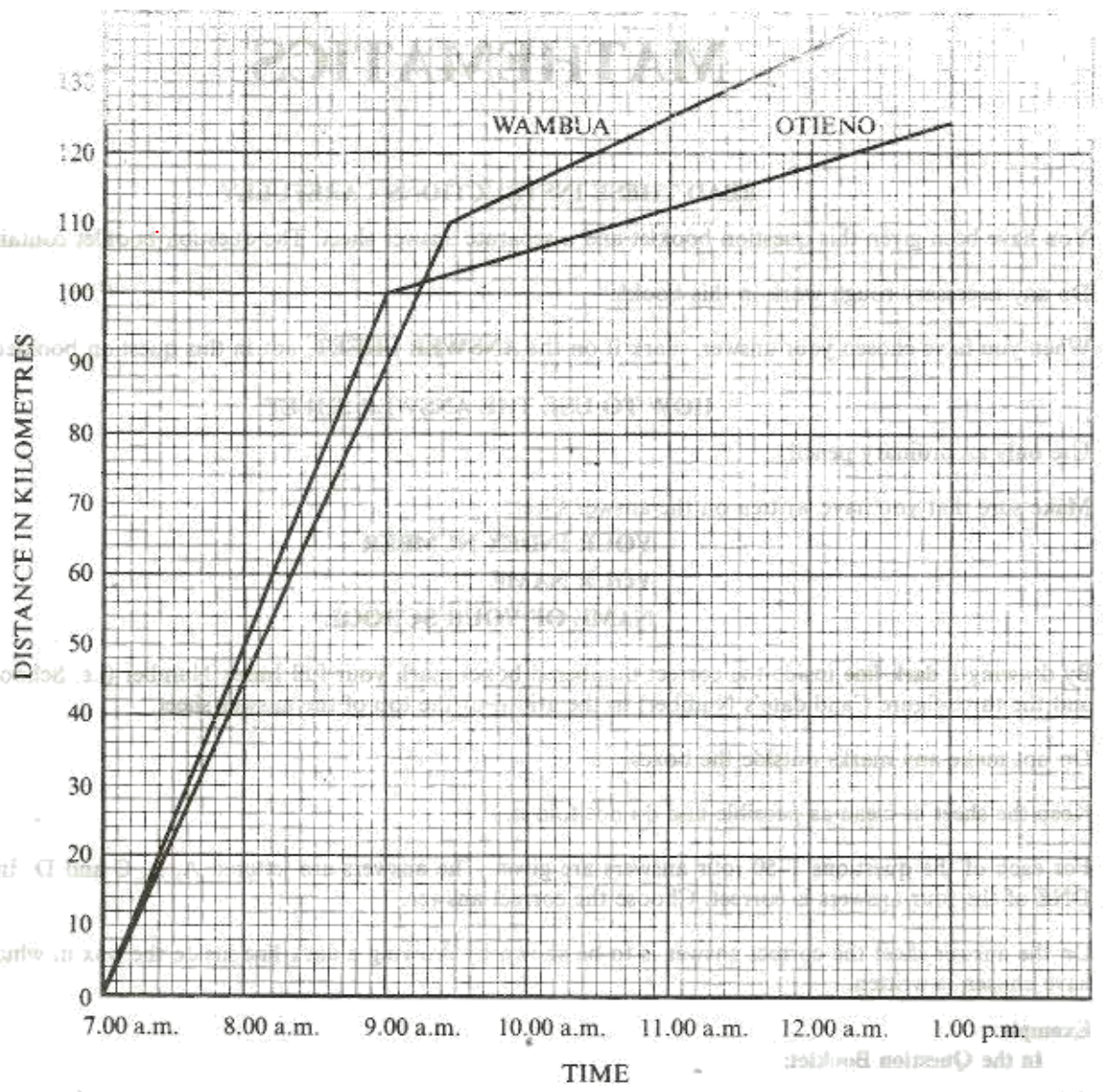A. 8
B. 28
C. 36
D. 108

49. The incomplete table below shows the numbers of people who attended a football match and the gate charges. The number of children is not shown.

	No. of people	Gate charges in ksh.
Children	...	5
Students	600	20
Female Adults	440	50
Male Adults	500	50

If the total amount collected was ksh. 60 000, how many people altogether attended the match?
A. 200
B. 1000
C. 1540
D. 1740

DISTANCE IN KILOMETRES

WAMBUA   OTIENO

130
120
110
100
90
80
70
60
50
40
30
20
10
0

7.00 a.m.   8.00 a.m.   9.00 a.m.   10.00 a.m.   11.00 a.m.   12.00 a.m.   1.00 p.m.

TIME

At what time was Otieno 10 km ahead of Wambua?

A. 10.30 a.m.
B. 9.27 a.m.
C. 9.00 a.m.
D. 7.12 a.m.