11.0 MATHEMATICS

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Primary Education

503 – **MATHEMATICS** –

Oct. 2017 – 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 this question booklet.

HOW TO USE THE ANSWER SHEET

4. Use an ordinary pencil.
5. Confirm that the answer sheet that you have been provided 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 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.

   11. What is the value of $\dfrac{6(24-18)+6\times4}{6}$?
   A. 30
   B. 25
   C. 10
   D. 28

   The correct answer is C (10)

   On the answer sheet:

   [A] [B] [C] [D]   [A] [B] [C] [D]   [A] [B] [C] [D]   [A] [B] [C] [D]   [A] [B] [C] [D]

   In the set of boxes numbered **11**, 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 16 printed pages.

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503

1. What is 99909909 written in words?

   A. Nine million nine hundred and nine thousand nine hundred and nine
   B. Ninety nine million nine hundred and nine thousand nine hundred and nine
   C. Ninety nine million nine hundred and ninety thousand nine hundred and nine
   D. Ninety nine million ninety thousand and ninety nine

2. What is $\frac{2}{3}$, $\frac{5}{12}$, $\frac{1}{8}$, $\frac{4}{5}$ arranged in ascending order?

   A. $\frac{1}{8}$, $\frac{5}{12}$, $\frac{2}{3}$, $\frac{4}{5}$

   B. $\frac{4}{5}$, $\frac{2}{3}$, $\frac{5}{12}$, $\frac{1}{8}$

   C. $\frac{1}{8}$, $\frac{2}{3}$, $\frac{4}{5}$, $\frac{5}{12}$

   D. $\frac{2}{3}$, $\frac{4}{5}$, $\frac{1}{8}$, $\frac{5}{12}$

3. A farmer harvested 10 tonnes of maize. He used 3500 kg on food and gave 2000 kg to neighbours. How many tonnes of maize did he sell?

   A. 15.5
   B. 8.5
   C. 5.5
   D. 4.5

4. A closed cylindrical tank was made using metal sheets. The diameter of the tank was 1.4 m and its height was 2 m. How many square metres of the metal sheets was used to make the tank?

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

   A. 3.08
   B. 8.8
   C. 10.4
   D. 11.88

5. Two men can complete work on a piece of land in 10 days. How many less days will 5 such men require to complete the work on the piece of land?

   A. 4
   B. 6
   C. 14
   D. 15

6. What is the value of $\frac{1}{2} + \frac{9}{10} + \frac{18}{5} - \frac{1}{5} \, of \, \frac{1}{4}$?

   A. $\frac{7}{10}$

   B. $\frac{11}{80}$

   C. $\frac{17}{360}$

   D. $\frac{69}{100}$

7. A cylindrical container has a radius of 7 m and a height of 20 m. How many litres of oil can it hold when full?

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

   A. 3080
   B. 30800
   C. 308000
   D. 3080000

8. At the beginning of the year 2015, there were 1010 boys and 1224 girls in a certain school. At the end of the year, 125 boys and 141 girls left the school. In the year 2016, 115 boys and 84 girls were transferred from the school. What was the population of the school by the end of year 2016?

   A. 1968
   B. 2100
   C. 1769
   D. 2234

9. Which **one** of the following is true about a quadrilateral?

   A. Has four sides
   B. All sides are equal
   C. All angles are equal
   D. Opposite sides are parallel

10. The pie-chart below shows how Atieno spent her salary.
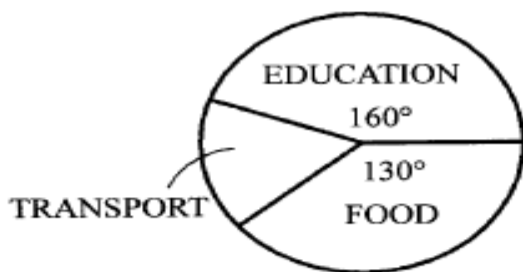
If her salary was sh 18000, how much more did she spend on education than on transport?

A. sh 11500
B. sh 8000
C. sh 4500
D. sh 3500

11. A piece of land, 7.25ha, is to be divided into 0.125ha plots. If two houses were to be built in each plot, how many houses would be built?

A. 11.6
B. 29
C. 58
D. 116

12. What is the value of $816 \div 4 + 6(12-5)$?

A. 11.7
B. 246
C. 271
D. 3306

13. The figure below represents a piece of land

100 m

70 m

100 m
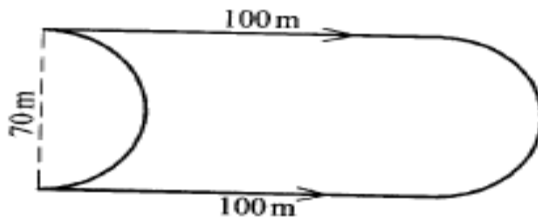
What distance would be covered if one was to walk two and a half times around it?

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

A. 1600 m
B. 1050 m
C. 775 m
D. 420 m

14. A *matatu* carries 14 passengers per trip. In one day, the *matatu* makes 3 trips. How much money does the *matatu* make in the month of April, if each passenger pays sh 70 per trip?

A. 88200
B. 29400
C. 2940
D. 980

15. Construct a parallelogram **EFGH** such that lines **GH** = 7 cm, **HE** = 5 cm and angle **GHE** = 45°.

What is the length of a half the diagonal **HF**?

A. 2.5 cm
B. 5.0 cm
C. 5.5 cm
D. 11.0 cm

16. The diagram below represents a piece of land in the shape of a trapezium and a semi-circle.
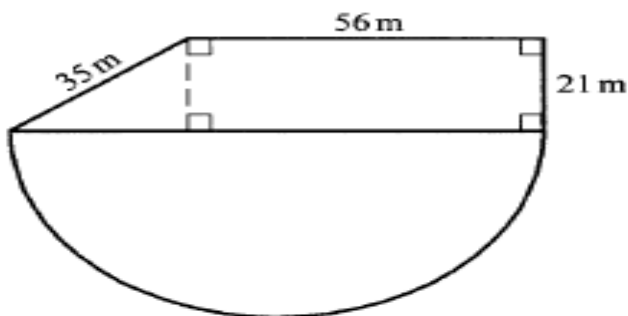
What is the area of the piece of land in ares?

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

A. 4242
B. 70.14
C. 42.42
D. 32.34

17. In a harambee $\frac{3}{10}$ of the attendance were women, $\frac{3}{5}$ of the remainder were men and the rest were children. What fraction of the attendance were children?

A. $\frac{49}{50}$

B. $\frac{29}{50}$

C. $\frac{21}{50}$

D. $\frac{7}{25}$

18. What is the value of x in the equation

$2(x+3 + \frac{1}{2}x + 1) = 116$?

A. $74\frac{2}{3}$

B. $44\frac{4}{5}$

C. 36

D. 27

19. What is the product of the LCM and HCF of the numbers 10, 20 and 40?

   A. 10
   B. 40
   C. 50
   D 400

20. What is the value of $\sqrt{228+16^2}$?

   A. 418
   B. 274
   C. 50
   D. 22

21. The perimeter of a square garden is 44 metres. What is the area of the garden in square metres?

   A. 484
   B. 121
   C. 22
   D. 11

22. A rectangular container measures 4 m by 3 m by 500 cm. The container is completely filled with 0.5 m long cubic packets. How many such packets are needed to fill $\frac{3}{4}$ of the container?

   A. 120
   B. 360
   C. 480
   D. 36000

23. *Juma* was given 2 one thousand shilling notes to buy the following items:

   2 kg of meat at sh 400 per kilogram

   2 kg of tomatoes at sh 300 per kilogram

   $1\frac{1}{2}$ kg of onions at sh 120 per kilogram

   $\frac{1}{2}$ kg of potatoes at sh 40 per kilogram

   How much money would he remain with after buying the items?

   A. sh 400
   B. sh 700
   C. sh 1140
   D. sh 1300

24. What is the value of $Z\left(\dfrac{x^2}{4}+y\right)-\dfrac{1}{2}$

    where $x = 3$, $y = x - 2$ and $Z = \dfrac{1}{2}$?

    A. $1\dfrac{1}{8}$

    B. $\dfrac{7}{8}$

    C. $\dfrac{3}{4}$

    D. $\dfrac{3}{8}$

25. A motorist started her journey on Monday at 10.00 p.m. She arrived at her destination after 6 hours and 15 minutes. On what day and at what time did she arrive at her destination in a.m./p.m. system?

    A. Monday 4.15 p.m.
    B. Tuesday 4.15 p.m.
    C. Monday 4.15 a.m.
    D. Tuesday 4.15 a.m.

26. A triangular right angled piece of land has an area of $84\,m^2$. Its base is $24\,m$ long. What is the length of its longest side?

    A. $25\,m$
    B. $13\,m$
    C. $7\,m$
    D. $3.5\,m$

27. Waisha bought a cow for sh 42000 after being offered a 16% discount. How much money would have been the discount had she bought the cow for sh 21000?

    A. sh 4000
    B. sh 14250
    C. sh 29000
    D. sh 50000

28. What is the difference between the next two numbers in the pattern:

    4, 9, 25, 49, 121, ..., ...,?

    A. 120
    B. 169
    C. 289
    D. 458

48

29. Natasha is paid a basic salary of sh 12000 in a month as a sales agent. She is also paid a 5% commission on goods sold above sh 20000. In a certain month, she sold goods worth sh 120000. How much money did she earn, in total, that month?

   A. sh 5000
   B. sh 17000
   C. sh 18000
   D. sh 19000

30. In an election 150 people participated in voting. Out of these; *0.14* voted for candidate P, *0.2* voted for candidate Q, while $\frac{2}{3}$ of the remaining people voted for candidate R. The rest cast votes that were declared invalid.

   How many people cast invalid votes?

   A. 21
   B. 30
   C. 33
   D. 66

31. What is the product of 2.645 and 5.06 in 2 decimal places?

   A. 13.41
   B. 13.43
   C. 13.38
   D. 13.46

32. What is $\frac{1}{3}(x + 6) + \frac{1}{2}(x - 2^2)$ when simplified?

   A. $\frac{5}{6}x + 2$
   B. $\frac{5}{6}x$
   C. $\frac{5}{6}x + 1$
   D. $2x$

33. The cash price of a T.V. set was sh 22000. Maria bought the T.V. set on hire purchase terms. She was allowed to pay a deposit equal to 40% of the cash price and eight equal monthly instalments of sh 2800. How much more money did she pay than the cash price?

    A. sh 8800
    B. sh 9200
    C. sh 22400
    D. sh 31200

34. Lorina deposited sh 50000 at a financial institution that paid Simple Interest at the rate of $2\frac{1}{2}$% p.a. How much did he have at the end of three years, altogether?

    A. sh 161250
    B. sh 57500
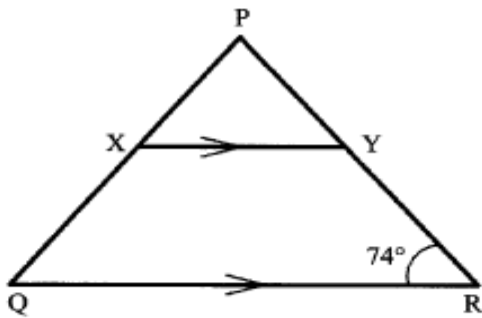   C. sh 53750
    D. sh 3750

35. The mean mark of the scores obtained by ten pupils in a test was 12. The marks obtained by eight of the pupils were:

    13, 11, 10, 9, 10, 18, 11, 10

   If the other two pupils obtained equal marks, what was the median mark in the test?

    A. 10
    B. 10.5
    C. 11
    D. 14

36. In the figure below line **XY** is parallel to line **QR**. Line **XY** = line **PY** and angle **QRP** = 74°.

What is the size of angle **RQP**?

A. 37°
B. 53°
C. 106°
D. 127°

37. What is the place value of digit 6 in 52.25 ÷ 4?

A. tenths
B. hundredths
C. thousandths
D. ten thousandths

38. The figure below represents an incomplete stack made of blocks.
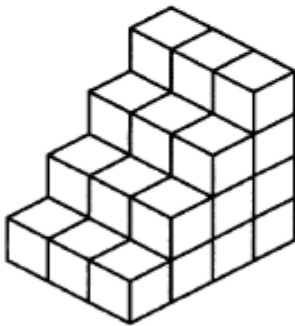
How many blocks are required to complete the stack?

A. 60
B. 48
C. 30
D. 18

39. A rectangular water tank whose base measures 5.2 m by 4 m has a height of 3 metres. The tank is three quarter full. How many litres of water are needed to fill the tank?

    A. 62400
    B. 46800
    C. 15600
    D. 15.6

40. What is the simplest form of the ratio:

$$6\left(\frac{1}{3}-\frac{1}{4}\right):\left(\frac{1}{2}+\frac{1}{3}\right)?$$

    A. 3:5
    B. 5:3
    C. 6:10
    D. 21:10

41. Karai is x years old and two years older than his wife. In ten years' time he will be 3 times as old as his daughter. What will be their total age then?

    A. $5x + 48$

    B. $2\frac{1}{3}x + 25\frac{1}{3}$

    C. $2\frac{1}{3}x + 8$

    D. $2\frac{1}{3}x + 21\frac{1}{3}$

42. Line **XY** below is a straight line. The arc at point **N** has been constructed from point **P**. Construct a perpendicular line from **P** to line **XY**, using the arc at **N**.

X ————————————— N ————————————— Y

• P

What is the length of the perpendicular distance from **P** to line **XY**?

A. 6.4 cm
B. 4.8 cm
C. 3.5 cm
D. 2.3 cm

43. Asha made a profit of sh 18000 from her trade. She spent $\frac{1}{3}$ of the profit on food and $\frac{2}{5}$ of the remainder on paying bills and fuel. She saved the rest. How much money did she save?

A. sh 13200
B. sh 7200
C. sh 6000
D. sh 4800

44. Chebet bought a soft set for sh 64000. The sofa set was later sold, making a 20% loss. For how much was the sofa set sold?

A. sh 80000
B. sh 76800
C. sh 51200
D. sh 12800

53

45. The level of fuel in a container decreased by 2% each hour. If the capacity of fuel in the container was 1600 litres, what was the capacity after 2 hours?

   A. 1664.64 l
   B. 1568 l
   C. 1536.64 l
   D. 1536 l

46. Kuria takes 2 h 15 min to cycle from home to the market at an average speed of 8 km/h. He cycles from the market back home at an average speed of 12 km/h. How much time does Kuria take to cycle from home to the market and back?

   A. $3\frac{3}{4}$ hours
   B. $3\frac{3}{5}$ hours
   C. $1\frac{1}{2}$ hours
   D. $5\frac{5}{8}$ hours

47. In the figure below, **QT** bisects angle **PQR**.
   Angle **RPQ** = 44°, line **PQ** = **PR** and **QRS** is a straight line.
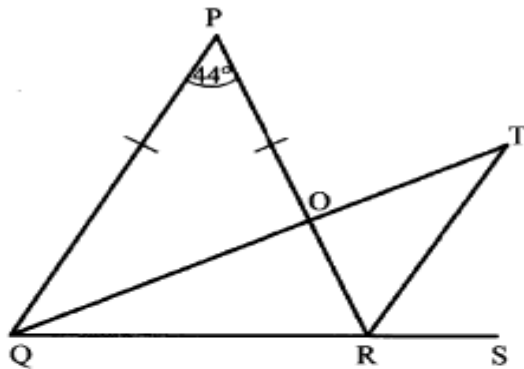

   What is the size of angle QOP?

   A. 34°
   B. 68°
   C. 78°
   D. 102°

48. The table below shows the type of
vehicles and the number of people
transported, in each type of a vehicle, to a
rally on Saturday and Sunday.

Type of vehicle/Day	No. of cars	No. of Bodabodas	No. of Matatus
Saturday	58	102	20
Sunday	45	127	18

Each car carried 4 people, each *bodaboda*
carried 2 people and each *matatu* carried
14 people. How many people were
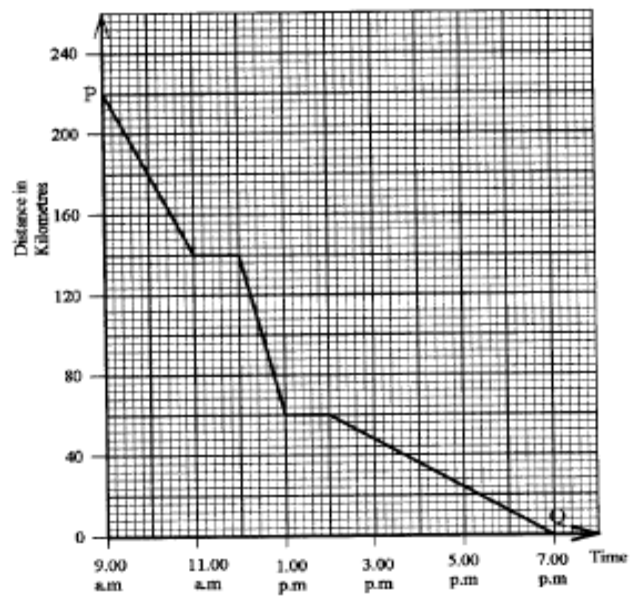transported to the rally by the end of the
second day?

A. 40
B. 370
C. 716
D. 1402

49. The figure below represents a rectangular
plot of land drawn to scale 1:1000.
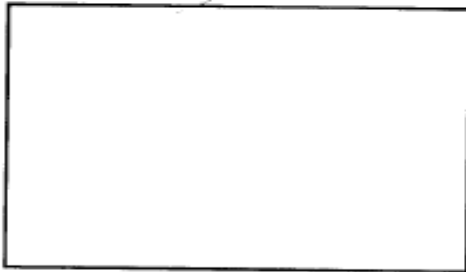
What is the actual area of the plot of land
in hectares?

A. 2400
B. 24
C. 2.4
D. 0.24

55

50. The graph below shows a journey by a
cyclist from city **P** to city **Q**.

Between what times was the average
speed lowest?

A   2.00 p.m. and 7.00 p.m.
B   9.00 a.m. and 11.00 a.m.
C   12.00 noon and 1.00 p.m.
D   12.00 noon and 7.00 p.m.