035713655

KENYA NATIONAL PREDICTION TESTS

KCPE

516003

MATHEMATICS

Time: 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 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 and 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.

    35. The following are factors of sixteen. Which one is the odd one out?

    A. 16
    B. 1
    C. 8
    D. 3

    5. [A] [B] [C] [D] 15. [A] [B] [C] [D] 25. [A] [B] [C] [D] 35. [A] [B] [C] [D] 45. [A] [B] [C] [D]

    On the answer sheet:

    In the set of boxes numbered **35**, the box with the letter **D** 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.

906503

1. What is 21,731,205 when written in words?
   A. Twenty one million seven hundred and three thousand and twenty five
   B. Twenty one million seven hundred and thirty one thousand two hundred and five
   C. Two million seven hundred and thirty one thousand two hundred and five
   D. Two hundred and seventeen million thirty one thousand two hundred and five

2. Which one of the following expressions is correct?
   A. $\frac{2}{7} > \frac{3}{5}$
   B. $32.5 - 20.1 < 30.62 + 20.1$
   C. $304 + 21 > 330 + 221$
   D. $0.75 < 0.075$

3. What is the difference of the next two numbers in the sequence?
   169, 289, 361, 529, ____, ____
   A. 104
   B. 112
   C. 120
   D. 336

4. Two schools Nyaisa and Model received development funds such that Nyaisa got $\frac{13}{15}$ of the fund. What was the ratio of Nyaisa's share to Model's share?
   A. 15 : 13
   B. 13 : 15
   C. 13 : 2
   D. 2 : 13

5. How many groups of 50 are there in the value of 6 in the number 136270?
   A. 10
   B. 100
   C. 120
   D. 1200

6. What is the smallest number that can be divided by 12, 18 and 27 without a remainder?
   A. 5832
   B. 108
   C. 36
   D. 3

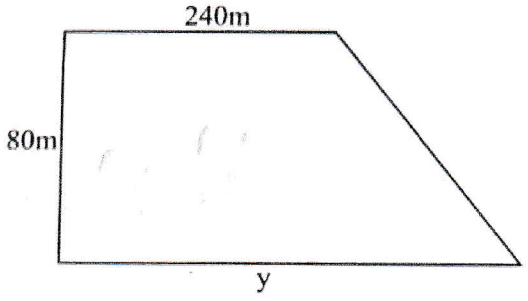
7. What is the square root of $5\frac{4}{9}$?
   A. $\frac{7}{9}$
   B. $1\frac{7}{9}$
   C. $2\frac{1}{3}$
   D. $29\frac{52}{81}$

8. Mwasi sold milk from 2nd February to 16th June 2020. If he sold the milk at sh 65 per litre, how much did she get that period?
   A. Sh 8710
   B. Sh 8775
   C. Sh 8840
   D. Sh 8905

9. A cylindrical water has tank 6160 litres of water. If it's base area is $6.16m^2$, what is the height of the water in the tank?
   A. 1000m
   B. 100m
   C. 10m
   D. 1m

10. What is the value of 1.6 x 3.852 - 2.574 rounded off to the nearest hundredth?
    A. 3.50
    B. 3.58
    C. 3.59
    D. 3.60

11. The figure below represents a piece of land whose area is 21600m^2.



If the farmer fences it off using 4 strands of wire, what is the length of the wire used?

A. 19200m
B. 2880m
C. 2480m
D. 1280m

12. What is the value of x in the equation?

$$\frac{7x-9}{4}+\frac{2}{5}=3$$

A. $19\frac{2}{5}$

B. $11\frac{13}{17}$

C. $7\frac{1}{2}$

D. $2\frac{27}{35}$

13. The table below shows the travel timetable for a bus from Mombasa to Nairobi.

	Arrival	Departure
Mombasa	-	2025h
Voi	2145h	2210h
Mtito Andei	0245h	0310h
Athi River	0830h	0840h
Nairobi	0950h	

How long did the bus take to travel from Voi to Athi river?

A. 10h 20min
B. 10h 45min
C. 10h 30min
D. 11h 20min

14. The longest side of a right angled triangle is 15cm. The base of the triangle is 3cm longer than it's height. If it's perimeter is 36cm, what is the area of the triangle?

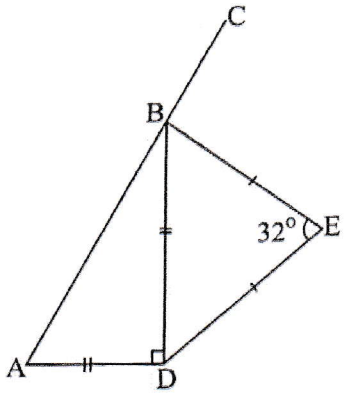
A. 54cm^2
B. 90cm^2
C. 180cm^2
D. 216cm^2

15. What is the simplest form of;

$2x + 6(y - x) + 3y + 4x$

A. $2x + 6y$
B. $9y - 2x$
C. $2x$
D. $9y$

16. In the figure below ABC is a straight line, AD and BD are equal and lines DE and BE are also equal. Angle BED is 32°.



What is the size of angle CBE?

A. 45°
B. 61°
C. 74°
D. 103°

17. Three juice vendors Lucy, Muna and Nadia sell juice in one hundred litre containers. On a certain day, Lucy sold twice as many containers as Nadia while Muna sold half as many containers as Lucy. If Muna sold 2 containers, how many litres of juice did the three juice vendors sell on that day?

A. 700 litres
B. 750 litres
C. 800 litres
D. 900 litres

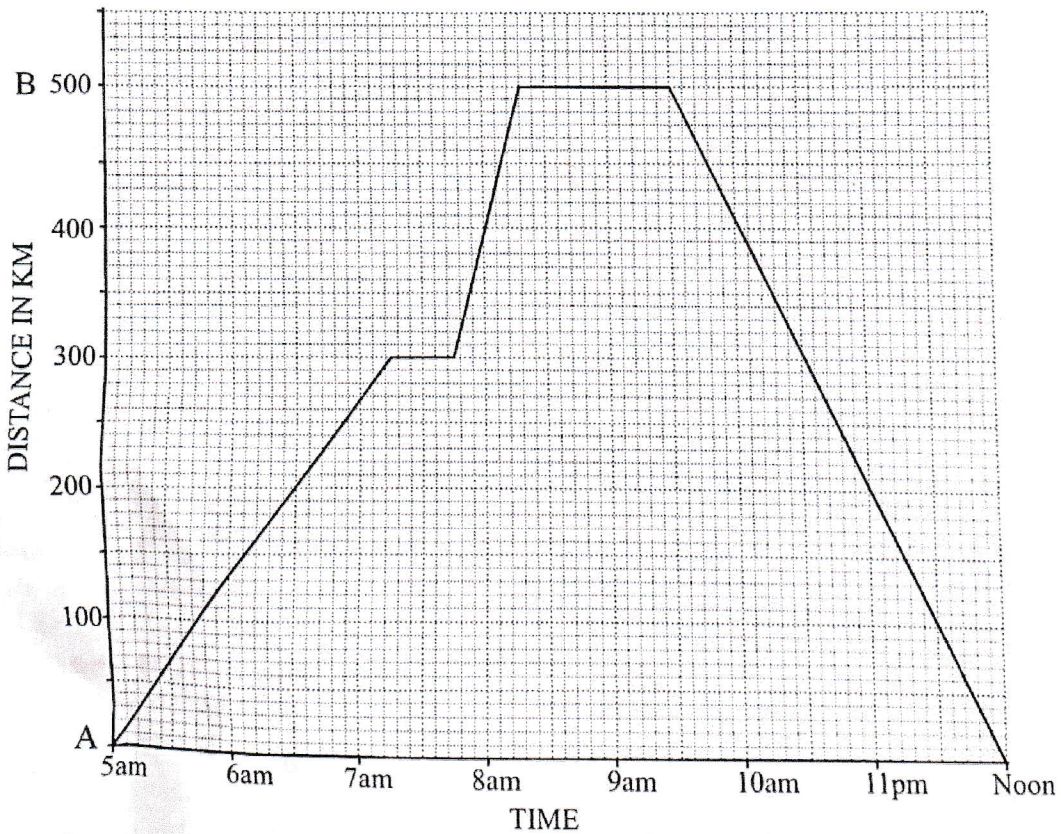
18. A farmer harvested 3 bags of millet and 6 bags of beans. He sold each bag of millet at sh.3950 and each bag of beans at 4150. If he paid fees amounting to sh 9800, how much was he left with?
A. Sh 46550
B. Sh 36150
C. Sh 26950
D. Sh 26350

19. What is the value of $\frac{2}{5} \div 1\frac{2}{3}$ of $\frac{3}{4}$?
A. $\frac{9}{50}$
B. $\frac{8}{9}$
C. $\frac{8}{25}$
D. $\frac{1}{2}$

21. In a public rally the number of women was twice that of men. The number of children was half the number of men and women. If 270 people attended the function, how many children were there?
A. 60 B. 90
C. 120 D. 180

22. Mukami was sent to the shop and bought the following items
Five half litre packets of milk @ sh 55
250g of tea leaves for sh 85
Two crates of eggs for sh 420
2 bars of laundry bar soap @ sh 140
1½kg of brown sugar @ sh 168
She was given a discount of 10% for cash payment. If she gave the shopkeeper sh 2000, how much did she receive as balance?
A. Sh 443.00
B. Sh 819.20
C. Sh 1312.00
D. Sh 1557.00

20. The graph below shows Nyalgunga's journey from town A to town B and back.

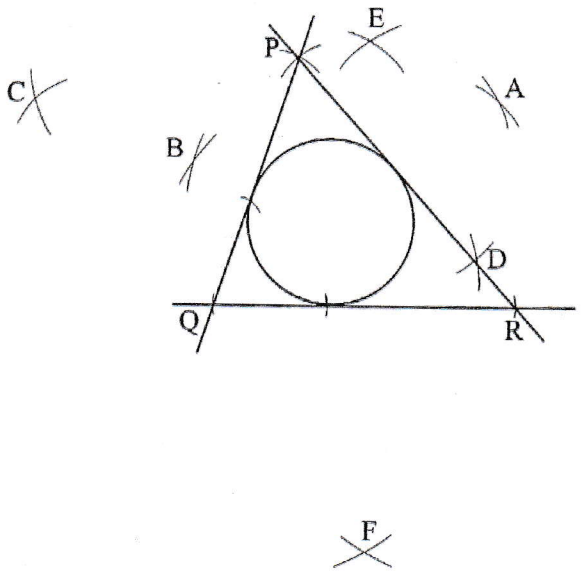


What was his average speed for the whole journey?

A. $72\frac{3}{7}$ km/h B. $142\frac{6}{7}$ km/h C. 100km/h D. 50km/h

23. A section of a road is represented by a length of 3.2cm on a map whose drawing scale is 1 : 50000. What is the actual length of the road in kilometres?
A. 0.16
B. 1.6
C. 16
D. 160

24. In the figure below a circle is constructed touching all sides of the triangle as shown.



Which pair of lines drawn through the construction marks were used to locate the centre of the circle?
A. EF and CD
B. BD and AQ
C. BR and AQ
D. CR and EQ

25. A librarian had a certain number of books. He gave one third of the books to Jane and one quarter to Lois. He also gave a tenth of the remaining books to Patrick. If he was left with 18 books, how many books was Lois given?
A. 2
B. 12
C. 16
D. 48

26. Mwebi left town R at 8.15a.m for town S travelling at a speed of 90km/h. Morris also left town S at 9.00a.m for town R travelling at a speed of 120km/h. The two motorists met at a place 180km away from R. What was the distance between towns R and S?
A. 330km
B. 300km
C. 276km
D. 150km

27. What is the value of $\frac{2s+r}{q}$ if $q=4, r=2q+1$ and $s=r+2$?
A. 3
B. $4\frac{3}{4}$
C. 7
D. $7\frac{3}{4}$

28. Odera placed a 26 metre long ladder so that the bottom touched the ground 10 metres away from wall. How high did the ladder touch on the wall?
A. 12m
B. 13m
C. 20m
D. 24m

29. Njenga borrowed sh 30000 from a financial institution. At the end of 9 months, he repaid sh 34050 which included the interest. At what rate per annum was Njenga charged?
A. 12%
B. 15%
C. 18%
D. 20%

30. The mean mass of four pupils was 49.5kg. When the masses of another pupil and their teacher were included the mean mass became 53kg. If the mass of the pupil was 18kg less than that of the teacher, what was the teacher's mass?
A. 44kg
B. 51kg
C. 69kg
D. 76kg

31. Construct triangle PQR such that line QR = 8.4cm, angle PQR = 48° and RPQ = 75°. What is the length of line PQ?
A. 6.5cm
B. 6.8cm
C. 7.3cm
D. 13.1cm

32. Mugwana paid sh 37000 for a cupboard after getting a discount of 7½%. How much more would he have paid had he been given a discount of 5%?
A. Sh 40000
B. Sh 35150
C. Sh 1000
D. Sh 925

33. Twenty five litres of milk were given to a class of 50 pupils in equal decilitre packets. What was the size of each decilitre packet were the pupils given?
A. 0.5dl
B. 5dl
C. 50dl
D. 500dl

34. The hire purchase price for an article is 25% more than the cash price. Ikua bought it on hire purchase terms by paying a deposit of sh 26400 and the remaining amount in 12 equal instalments. If the cash price was sh 48,000, how much was each instalment?
A. Sh 800
B. Sh 1800
C. Sh 2800
D. Sh 5000

35. A certain quadrilateral has the following properties:
i) Has two sets of parallel sides
ii) Has all sides equal
iii) Diagonals bisect each other at right angle
iv) Some of it's angles are equal
Which of the following quadrilateral has the above properties?
A. Square
B. Rhombus
C. Parallelogram
D. Trapezium

36. A casual worker is paid sh 8550 after working for 25 days. How much money would he be paid if he does not work for 4 days?
A. Sh 342
B. Sh 1368
C. Sh 7182
D. Sh 9918

37. The table below shows number of registered voters in four wards in a certain constituency.

WARD	WARD A	WARD B	WARD C	WARD D
No. of Voters	45000	36000	21000	-

A pie chart was drawn to represent the information above. If the angle representing the number of registered voters for ward C was 63°, how many registered voters are in ward D?

A. 120000
B. 102000
C. 18000
D. 17850

38. An empty carton weighs 750g. The carton is filled with packets of coffee each weighing 0.25kg. If the full carton has a mass of 27kg, how many packets of coffee are packed in the carton?

A. 105 packets
B. 108 packets
C. 110 packets
D. 112 packets

39. Three bells are set to ring at intervals as shown below.
Red bell rings after every 20 minutes
Blue bell rings after every 30 minutes
Green bell rings after every 45 minutes
If they all ring at the same time at 12.41p.m, at what time had they rang together again?

A. 9.41a.m
B. 3.41p.m
C. 9.41p.m
D. 3.41p.m

40. Suleiman sold a watch at sh 425 making a profit of 25%. How much had he bought the watch?

A. Sh 318.75
B. Sh 340.00
C. Sh 400.00
D. Sh 531.25

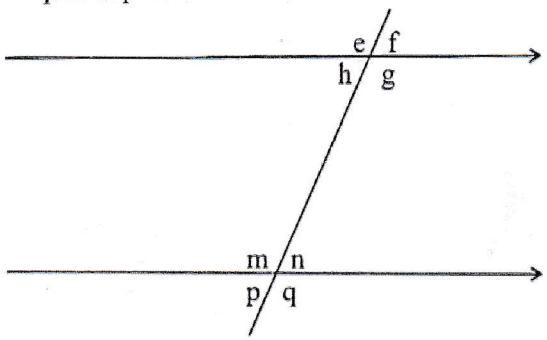
41. What is the value of $0.53825 \div 0.06$ correct to three decimal places?

A. 8.970
B. 8.971
C. 8.991
D. 8.981

42. The fractions $\frac{5}{6}, \frac{2}{3}, \frac{9}{10}$ and $\frac{3}{5}$ are to be arranged in order of size from the smallest to the largest. Which one of the following is the correct order?

A. $\frac{3}{5}, \frac{2}{3}, \frac{5}{6}, \frac{9}{10}$
B. $\frac{3}{5}, \frac{5}{6}, \frac{2}{3}, \frac{9}{10}$
C. $\frac{9}{10}, \frac{5}{6}, \frac{2}{3}, \frac{3}{5}$
D. $\frac{2}{3}, \frac{3}{5}, \frac{5}{6}, \frac{9}{10}$

43. The figure below shows angles formed by a pair of parallel lines and a transversal.



Which group of angles below are equal to angle marked with letter n?

A. p, h, f
B. p, q, f
C. p, m, f
D. p, g, h

44. At the beginning of the year 2021 there were 400 pupils in a certain primary school of whom 55% were boys. At the end of the year the number of girls had increased by 20% and that of boys had decreased by 15%. What was the total number of pupils in the school at the end of the year?

A. 540
B. 403
C. 397
D. 260

45. In a certain company commission is offered to any sales above sh 100000. In May, Eunice received a commission amounting to sh 36000 after selling goods worth sh 800000. What was the commission percentage did the company offer?

A. 4%
B. 4½%
C. $5^{1}/_{7}\%$
D. 36%

46. What is the area of the curved surface of an iron rod whose diameter is 14cm and a height of 19cm? (Take $\pi = \frac{22}{7}$)

A. $2926cm^2$
B. $1144cm^2$
C. $990cm^2$
D. $836cm^2$

47. The table below shows Post Office rates for sending letters, postcards and aerogrammes as at 2020.

Inland	Charges		International Air mail		
	Shs	Cts	Africa	Europe	America & Far East
Not over 20g	18	00			
Not over 50g	20	00			
Not over 100g	27	00	Aerograms		
Not over 250g	35	00	Sh 42	Sh 42	Sh 53
Not over 500g	50	00	Postcards		
Not over 1kg	65	00	Sh 20	Sh 32	Sh 45
Not over 2kg	85	00			

Wambui sent the following mail:

3 letters each weighing 55g
2 letters each weighing 125g
1 letter weighing 650g
2 aerogrammes to Europe
1 postcard to Europe
2 postcards to Far East

How much did she spend on postage?

A. Sh 166
B. Sh 272
C. Sh 316
D. Sh 422

48. The table below represents the number of crates of bread sold by a local distributor for five days in a certain week.

Days of the week	Mon	Tue	Wed	Thur	Fri
No. of crates sold	139	143	149	135	150

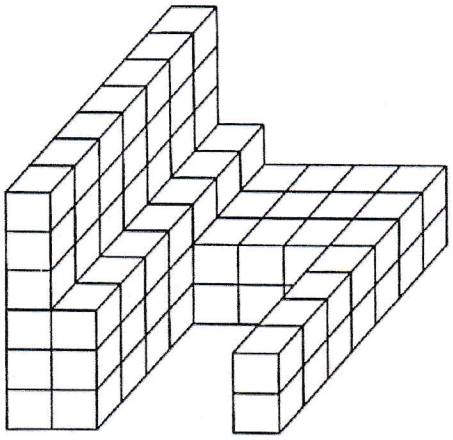
If each crate carries 20 loaves, how many loaves did he sell that week?

A. 14320
B. 12000
C. 716
D. 650

49. There are x mangoes in Betty's basket. Awinja too has y mangoes in her basket. Halima's basket has 5 mangoes less than the number of mangoes in both Betty and Awinja's baskets. Which of the following expressions represent the total number of mangoes the three girls have?

A. $2x+2y+2$
B. $2x+2y-3$
C. $2x+2y-5$
D. $2x+2y+7$

50. The diagram below show a stack made from cubes.



How many more cubes are needed to complete the stack?

A. 95
B. 133
C. 145
D. 157