KCPE 2008

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 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:

44. What is 1·28978 correct to three decimal places?

   A. 1·28
   B. 1·289
   C. 1·29
   D. 1·290

The correct answer is D (1·290).

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| ➡

In the set of boxes numbered 44, 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 13 printed pages and 3 blank pages.

1. Which one of the following numbers is one million five thousand three hundred and eight?
   A   1005308
   B   1050308
   C   1500308
   D   1005038

2. What is the value of $\dfrac{6^2 - 6}{3} + 3$?
   A   5
   B   11
   C   13
   D   31

3. What is the number 21·046 rounded off to 2 decimal places?
   A   21·46
   B   21·04
   C   21·00
   D   21·05

4. What is the square of $6\frac{1}{4}$?
   A $39\frac{1}{16}$
   B $36\frac{1}{16}$
   C $12\frac{1}{2}$
   D $2\frac{1}{2}$

5. What is the total value of digit 6 in the number 40607580?
   A   Six million.
   B   Six hundred thousand.
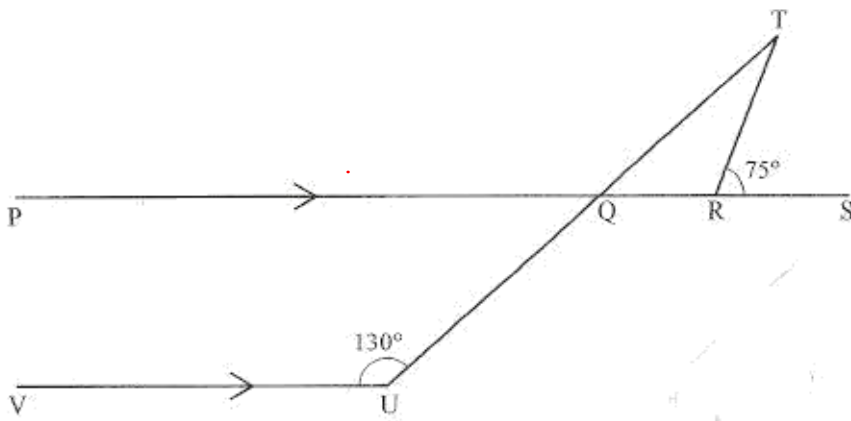   C   Sixty thousand.
   D   Hundred thousand.

6. The table below shows the number of 90 kg bags of maize that Mutiso sold to a miller in the years 1998 to 2002.

Year	1998	1999	2000	2001	2002
No. of bags	13 092	14 290	13 055	13 995	13 226

   In which years did Mutiso have the least increase in the number of bags sold?
   A   Years 2001 and 2002.
   B   Years 2000 and 2001.
   C   Years 1999 and 2000.
   D   Years 1998 and 1999.

7. In the figure below, PS is parallel to VU, angle TRS = 75° and angle TUV = 130°.
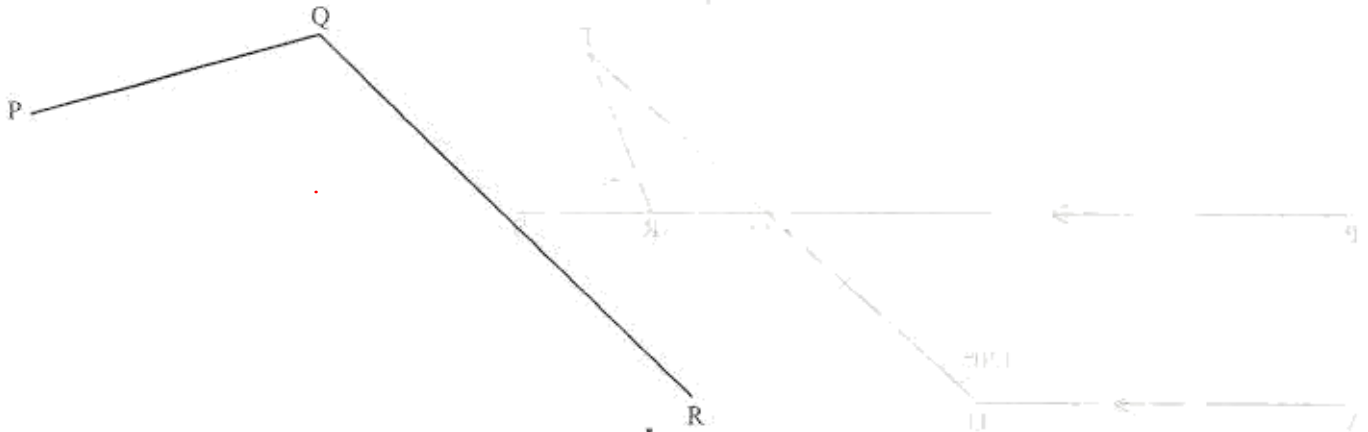
What is the size of angle RTQ?

A   25°
B   55°
C   50°
D   105°

8. What is the Greatest Common Divisor of 120 and 270?

A   3
B   10
C   30
D   1 080

9. What is the capacity of a container which measures 1·5 m by 1·0 m by 0·5 m in litres?

A   7 500
B   750
C   75
D   7·5

79

10. On the figure below, draw perpendicular bisectors of lines PQ and QR to meet at a point X.
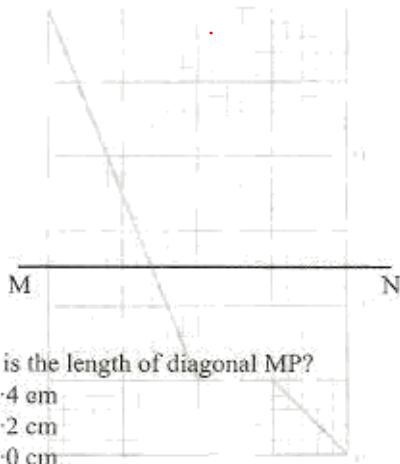
What is the length of QX?

A   5·2 cm
B   4·4 cm
C   7·0 cm
D   5·5 cm

11. What is the next number in the pattern 1, 4, 10, 19, ... ?

A   28
B   29
C   31
D. 34

12. Atieno had the following amount of money in her savings box. How much money did she have altogether?

Value of coin/note in shillings	1	5	10	20	50	100	200	500	1 000
Number of coins/notes	25	10	25	20	5	6	4	1	1

A   sh 97
B   sh 3 875
C   sh 1 983
D   sh 1 886

13. A saleslady earns a salary of sh 25 000 per month. She also gets a 4% commission on goods sold above a total of sh 150 000. In one month she sold goods worth sh 350 000. How much money altogether did she earn that month?

A   sh 8 000
B   sh 39 000
C   sh 31 000
D   sh 33 000

14. On the line MN drawn below, complete the quadrilateral MNPQ in which lines NP = 3 cm and QM = 7 cm. Angle QMN = 60° and angle MNP = 90°.
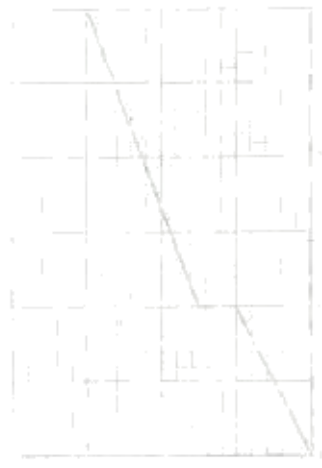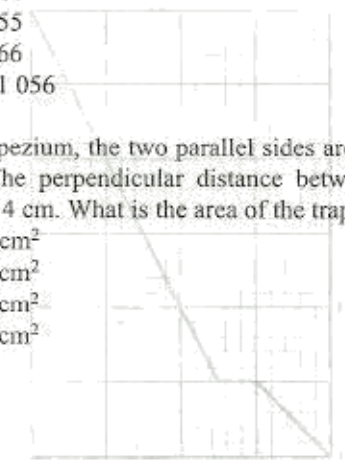
M _____ N

What is the length of diagonal MP?

A   3·4 cm

B   6·2 cm

C   5·0 cm

D   5·8 cm

15. A shopkeeper spent sh 880 to buy 16 plates and then sold them making a profit of 20%. For how much did the shopkeeper sell each plate?
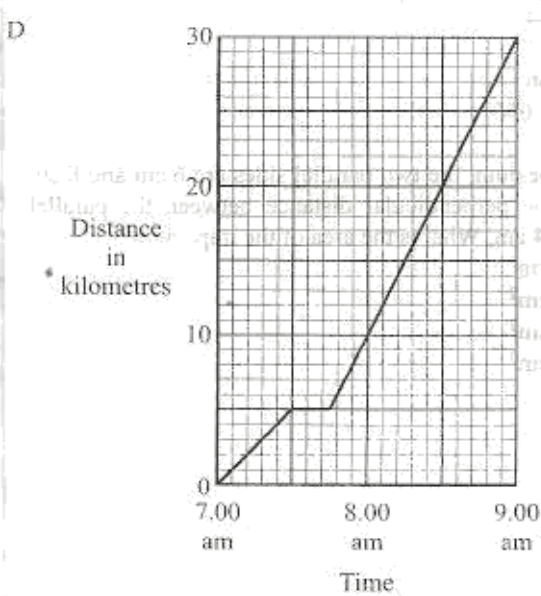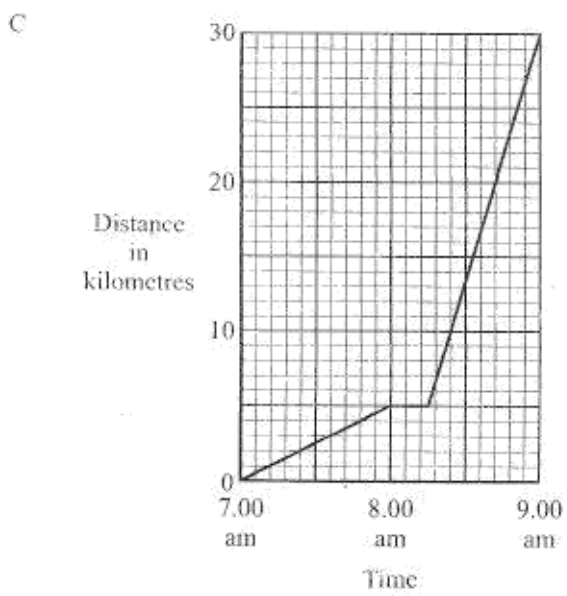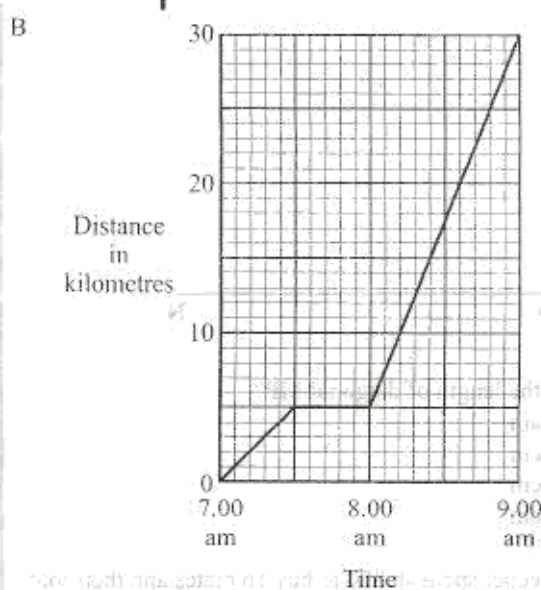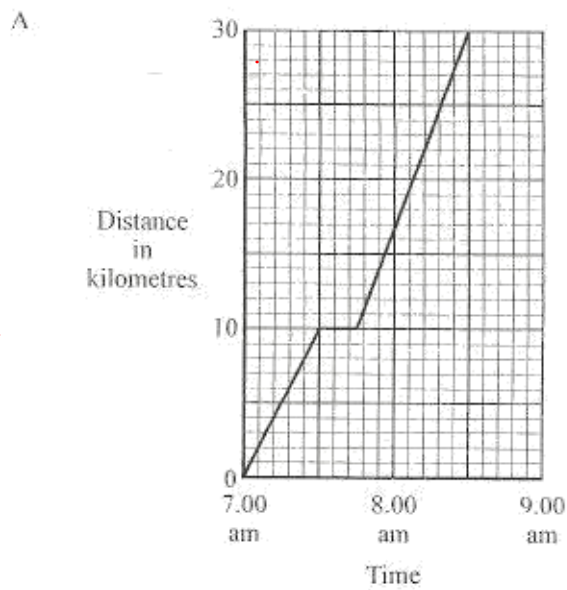
A   sh 44

B   sh 55

C   sh 66

D   sh 1 056

16. In a trapezium, the two parallel sides are 6 cm and 8 cm long. The perpendicular distance between the parallel sides is 4 cm. What is the area of the trapezium?

A   24 cm^2

B   28 cm^2

C   32 cm^2

D   56 cm^2

17. A cyclist left home for town, a distance of 30 km, at 7.00 am. After travelling for 30 minutes at a speed of 10 km/h, the bicycle got a puncture which took 15 minutes to repair. The cyclist then resumed the journey and reached the town at 9.00 am.

Which one of the following graphs below correctly represents the cyclist's journey?

A

Distance in kilometres

| | 7.00 am | 8.00 am | 9.00 am |

Time

B

Distance in kilometres

| | 7.00 am | 8.00 am | 9.00 am |

Time

C

Distance in kilometres

| | 7.00 am | 8.00 am | 9.00 am |

Time

D

Distance in kilometres

| | 7.00 am | 8.00 am | 9.00 am |

Time

18. At a film show, $\frac{1}{5}$ of the attendants were boys while $\frac{1}{4}$ were girls. Two fifths of the remainder were men and the rest were women.

What fraction of the total attendants were women?

A $\frac{11}{20}$

B $\frac{11}{50}$

C $\frac{3}{20}$

D $\frac{33}{100}$

19. The mean of 7 numbers is 4. Six of the numbers are: 2, 3, 1, 2, 7, 8. What is the median of the seven numbers?

A 2

B 2·5

C 3

D 5

20. What is the value of $\dfrac{8+0.5\times0.3-0.05}{0.09}$?

A 9

B 90

C 27·$\dot{7}$

D 23·6$\dot{1}$

21. The scale on a map is 1:200. What length on the map would represent a distance of 50 metres?
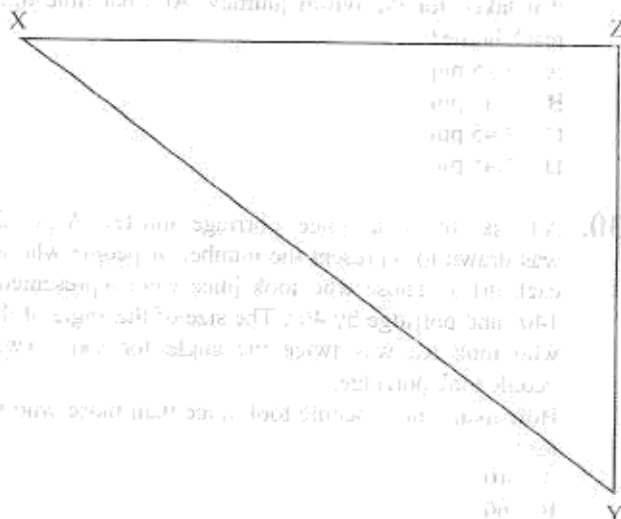
A 0·25 cm

B 25 cm

C 4 cm

D 2·5 cm

22. Otieno, Leila, Rotich and Furaha shared sh 840. Otieno got twice as much as Leila. Leila got three times as much as Rotich while Rotich got half of what Furaha got. What was the difference between Otieno's share and Furaha's share?

A sh 350

B sh 420

C sh 210

D sh 280

23. Mwasi borrowed sh 50 000 from a bank that charged compound interest at the rate of 25% p.a. How much should he pay the bank at the end of two years?

A sh 78 125

B sh 75 000

C sh 62 500

D sh 28 125

24. Draw the circle that passes through the points X, Y and Z of the triangle below.

What is the measure of the radius of the circle?

A 2·0 cm

B 4·3 cm

C 5·0 cm

D 3·0 cm

25. What is the value of $\dfrac{2q-r}{y}+n$ where $n = 5$, $y = 2n$, $q = n + 9$ and $r = q-6$?

A 7

B $2\frac{1}{2}$

C $6\frac{1}{5}$

D 11

26. An open cylindrical tin has a diameter of 14 cm and a height of 10 cm. What is the surface area of the tin in cm^2? (Take $\pi = \frac{22}{7}$)

A 1 540

B 1 496

C 748

D 594

27. How many faces (F), vertices (V) and edges (E) does a triangular prism have?

	F	V	E
A	4	4	6
B	6	8	12
C	5	5	8
D	5	6	9

28. Ahmed earns sh 560 500 per year. Oloo earns three times as much as Alice. Alice earns twice as much as Ahmed. How much money, altogether, do they all earn in a year?

A sh 1 121 000

B sh 3 363 000

C sh 4 484 000

D sh 5 044 500

29. Musa left home at 11.45 am and took 1 h 20 min to travel to town. After staying in town for one hour, he travelled back home. The time taken to travel to town was twice that taken for the return journey. At what time did he reach home?
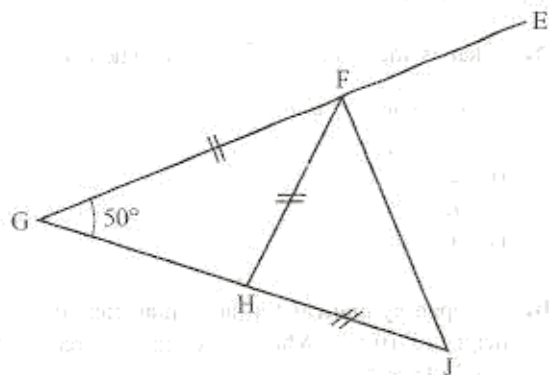
A   3.25 pm
B   2.45 pm
C   4.45 pm
D   1.45 pm

30. A kiosk sold soda, juice, porridge and tea. A pie-chart was drawn to represent the number of people who took each drink. Those who took juice were represented by 140° and porridge by 40°. The size of the angle of those who took tea was twice the angle for soda. Twenty people took porridge.
How many more people took juice than those who took tea?

A   10
B   60
C   70
D   130

31. In the figure below, GFE and GHJ are straight lines. Line GF = FH = HJ and angle FGH = 50°.

What is the measure of angle EFJ?

A   130°
B   75°
C   80°
D   105°

32. Which one of the following expressions is the simplified form of

$$\frac{x + 3(x + 2y) - 2x + 2y}{x}?$$

A $\frac{2x + 4y}{x}$

B $\frac{3 + 4y}{x}$

C $\frac{2x + 8y}{x}$

D $x + 8y$

33. A cylindrical solid of height 20 cm and radius 7 cm is cut into two equal parts along the diameter. What is the volume of each part in cm³? (Take $\pi = \frac{22}{7}$)

A   3 080
B   440
C   1 540
D   385

34. Construct triangle EFG with EF = 6·2 cm, angle EFG = 60° and angle FEG = 40°. Draw a perpendicular from G to meet line EF at H.
What is the measure of line EH?

A   5·4 cm
B   3·5 cm
C   4·1 cm
D   2·1 cm

35. The length of a rectangular plot is 30 m and the width is 20 m. Each side of the plot is increased by 10%.
What is the increase in the area of the plot?

A   6 m²
B   126 m²
C   600 m²
D   726 m²

36. A rectangular tank whose base measures 1·2 m by 80 cm contains water to a height of 1·5 m. How much water, in litres, is in the tank?

A   14·4
B   144
C   1 440
D   14 400

37. A circular plot was fenced by two equal strands of wire whose total length was 440 m. What was the radius of the plot? (Take $\pi = \frac{22}{7}$)

A $17\frac{1}{2}$ m
B   35 m
C   70 m
D   140 m

38. Bongo gave 0·12 of his land to his wife, 0·25 to his son and 0·3 to his daughter. If he had 2·4 hectares of land, how many hectares was he left with?

A   0·72
B   0·288
C   0·6
D   0·792

39. Mwende bought the following items to make a dress:
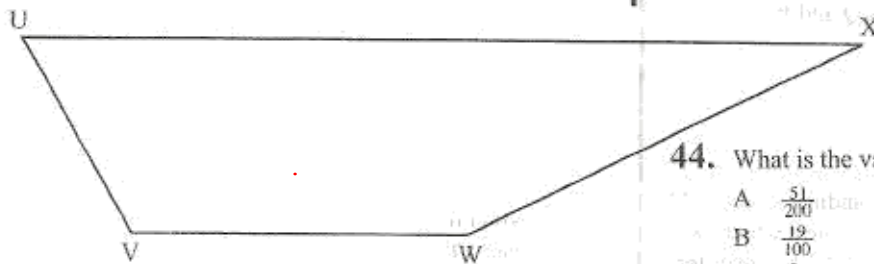2½m of dress material   @ sh 275
6 buttons   @ sh 7·50
Three reels of thread for   sh 70

She also paid sh 450 for making the dress. If she had sh 1 500, how much money was she left with?

A   sh 247·50
B   sh 1 252·50
C   sh 107·50
D   sh 697·50

40. The scale drawing below represents four towns U, V, W and X. The shortest distance from town V to W is 450 km.

What is the distance from town U to town X through town V and W?
A 100 km
B 1 350 km
C 2 480 km
D 1 130 km

41. On a farm there are cows, goats and sheep. The number of goats is twice the number of cows while the number of sheep is 25 less than the number of goats. If the number of goats is g, how many animals are on the farm?

A $2\frac{1}{2}g - 25$

B $2\frac{1}{2}g + 25$

C $4g - 25$

D $g - 25$

42. What is the value of y in the equation

$$\frac{2}{3}(6y - 2) = 2y + 4 ?$$

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

B 3

C $\frac{8}{9}$

D $1\frac{1}{3}$

43. The area of a right-angled triangular plot is 120 m². The length of the shortest side is 10 m.
What is the length of the longest side?
A 24 m
B 26 m
C 12 m
D 34 m

44. What is the value of $\dfrac{2\frac{1}{8} + \frac{1}{4}\left(1\frac{3}{8} - \frac{7}{8}\right)}{3\frac{1}{8} \times \frac{3}{4} \div \frac{3}{8}}$?

A $\frac{51}{200}$

B $\frac{19}{100}$

C $\frac{9}{25}$

D $1\frac{11}{25}$

45. Juma bought a blouse and a shirt from a shop which allowed a 10% discount on the marked price of each item. He paid a total of sh 630. If he paid sh 270 for the blouse, what was the marked price for the shirt?
A sh 324
B sh 360
C sh 396
D sh 400

46. John bought 50 kg of sugar which he packed in packets as follows:
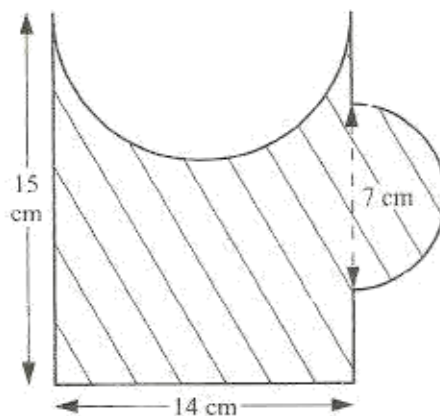
One quarter of the sugar in 125 g packets;
One half of the sugar in 250 g packets;
The remainder in 500 g packets.

How many packets, altogether, of sugar did he get?
A 225
B 100
C 125
D 2 250

47. The shaded figure below was obtained from a rectangular piece of paper from which a semicircle of diameter 14 cm was removed and another semicircle of diameter 7 cm added.

What is the area of the shaded figure? (Take $\pi = \frac{22}{7}$)

A $229\frac{1}{4}$ cm²

B $306\frac{1}{4}$ cm²

C $152\frac{1}{4}$ cm²

D $113\frac{3}{4}$ cm²

48. Murage left town Q at 8.15 am for town R travelling at a speed of 90 km/h, Mwebi left town R at 9.00 am for town Q travelling at a speed of 120 km/h. The two met at a place 180 km away from Q.

What was the distance between towns Q and R?

A   330 km

B   150 km

C   300 km

D   276 km

49. During an election there were four candidates K, L, M and N. Candidate M received 3 421 votes which was 1 677 votes more than N received and 4 147 votes less than L received. The total number of valid votes cast was 23 406.

How many votes did K receive?

A   10 673

B   12 733

C   14 18?

D   7 21?

50. December the twelfth of 1999 was a Sunday.

What day of the week was twelfth April 2000?

A   Monday

B   Tuesday

C   Wednesday

D   Thursday