

KCPE 2007

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:

5. What is the place value of the digit 7 in the number 3470268?

- A. Thousands
- B. Ten thousands
- C. Seventy thousands
- D. Hundred thousands

The correct answer is B (Ten thousands).

On the answer sheet:

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)

In the first set, the box with the 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.

This Question Paper consists of 16 printed pages.

1. Which one of the following is 1100000.001 written in words?

- A One million one hundred thousand and one hundredth.
- B One million one thousand and one thousandth.
- C One million one hundred thousand and one tenth.
- D One million one hundred thousand and one thousandth.

2. What is the place value of the digit 7 obtained after working out $0.2016 \div 28$?

- A Tenths.
- B Hundredths.
- C Thousandths.
- D Ten thousandths.

3. What is 6.0947 rounded off correct to two decimal places?

- A 6.15
- B 6.10
- C 6.095
- D 6.09

4. What is the value of $3\frac{2}{5} - 2\frac{1}{4} \times 1\frac{1}{3} + \frac{1}{6}$ of $1\frac{3}{4}$?

- A $2\frac{32}{35}$
- B $1\frac{86}{105}$
- C $\frac{24}{35}$
- D $\frac{4}{35}$

5. What is the volume of a cylindrical tank of diameter 5 m and height 6 m? (Take $\pi = \frac{22}{7}$).

- A $471\frac{3}{7} \text{ m}^3$
- B $133\frac{4}{7} \text{ m}^3$
- C $117\frac{6}{7} \text{ m}^3$
- D $94\frac{2}{7} \text{ m}^3$

6. Auma and Maina shared the profit from the sale of fish in the ratio 3:4. If the profit was sh 8 400, how much money did Auma get?

- A sh 3 600
- B sh 4 800
- C sh 6 300
- D sh 11 200

7. Mariam bought the following items:

- 3 kg flour @ sh 55
- 2 kg packet of sugar for sh 115
- 2 bars of soap @ sh 42
- 3 litres of milk @ sh 25
- 1 ½ litres of kerosene @ sh 45

If she gave the shopkeeper a sh 1 000 note, how much balance did she receive?

- A sh 378.50
- B sh 493.50
- C sh 718.00
- D sh 506.50

8. A map is drawn to a scale of 1:20 000. What is the distance, in kilometres, of a road which is 25 cm on the map?

- A 5
- B 50
- C 500
- D 5 000

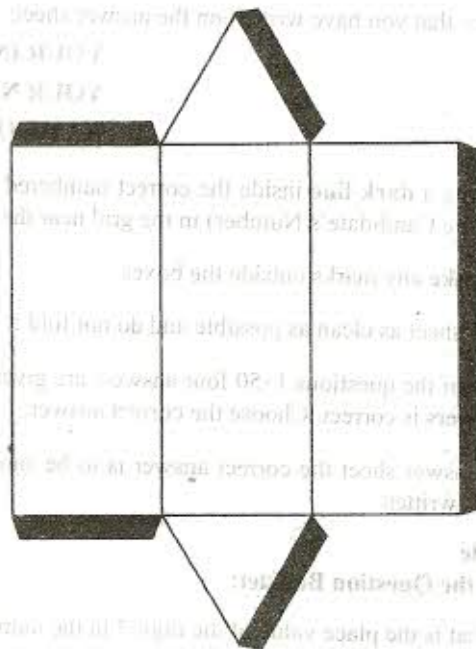
9. By how much is the LCM of 40 and 60 more than their GCD?

- A 20
- B 100
- C 120
- D 140

10. What is the value of $\frac{1.5 + 0.9 \text{ of } 2.5 - 1.42}{0.4}$?

- A 5.48
- B 5.825
- C 5.88
- D 10.85

11. Below is a net of a solid. The shaded parts are the flaps.



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

- A Rectangular prism.
- B Triangular pyramid.
- C Rectangular pyramid.
- D Triangular prism.

12. Which one of the following quadrilaterals has only one pair of parallel lines?

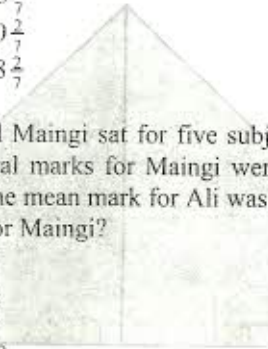
- A Rhombus.
- B Trapezium.
- C Parallelogram.
- D Rectangle.

13. A fruit vendor prepared juice which filled eight 3-litre containers. He later put the juice in 2-decilitre bottles for sale. How many such bottles of juice did he get?

- A 12
- B 120
- C 1 200
- D 12 000.

14. A lawn is in the form of a rectangle and two semicircles. The rectangle is 22 m long and 6 m wide. The widths of the rectangles are also the diameters of the semicircles. What is the area of the lawn in m^2 ?

- A $245\frac{1}{7}$
- B $188\frac{4}{7}$
- C $160\frac{2}{7}$
- D $28\frac{2}{7}$



15. Ali and Maingi sat for five subjects in an examination. The total marks for Maingi were 15 less than those of Ali. The mean mark for Ali was 65. What was the mean mark for Maingi?

- A 50
- B 62
- C 68
- D 310

16. What is the next number in the pattern

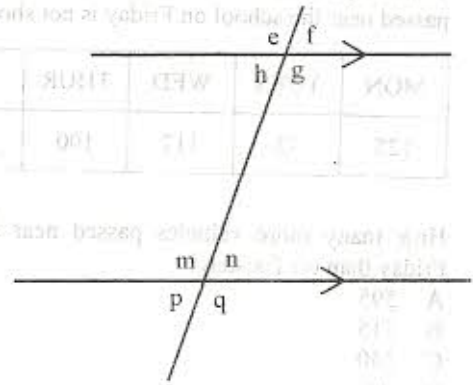
16, 44, 82, 130, ...?

- A 188
- B 212
- C 178
- D 140

17. In a certain village the total number of women and children was 34 603. The number of women and men was 18 623. If the number of men was 5 984, what was the number of children in that village?

- A 12 639
- B 15 980
- C 28 619
- D 21 964

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



In which group below, are each of the angles equal to n?

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

19. What is the value of $\sqrt{4.2849}$?

- A 0.207
- B 2.07
- C 2.7
- D 207

20. In a certain school, the fractions of boys in classes 5, 6, 7

and 8 are as follows: Class 5 is $\frac{12}{16}$, Class 6 is $\frac{13}{26}$, Class 7 is $\frac{10}{25}$ and Class 8 is $\frac{10}{18}$.

Which class has the least number of boys if all the classes have the same number of pupils?

- A Class 5
- B Class 6
- C Class 7
- D Class 8

21. What is the value of x in the equation $\frac{2x-3}{3} + 2x = 6$?

- A $1\frac{1}{8}$
- B $5\frac{7}{8}$
- C $1\frac{7}{8}$
- D $2\frac{5}{8}$

22. The table below shows the number of vehicles that passed near a school in one week. The average number of vehicles per day was 116. The number of vehicles that passed near the school on Friday is not shown.

MON	TUES	WED	THUR	FRI	SAT	SUN
125	75	142	100	148	112

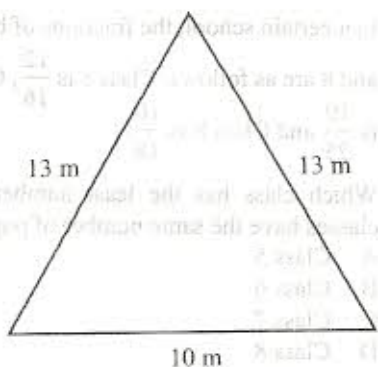
How many more vehicles passed near the school on Friday than on Tuesday?

- A 595
B 214
C 144
D 65

23. A small aircraft took 6 hours 30 minutes to travel from Pretoria to Mombasa. It reached Mombasa at 04 00 h on Wednesday. At what time and day did it depart from Pretoria?

- A 09 30 h on Wednesday
B 09 30 h on Tuesday
C 21 30 h on Wednesday
D 21 30 h on Tuesday

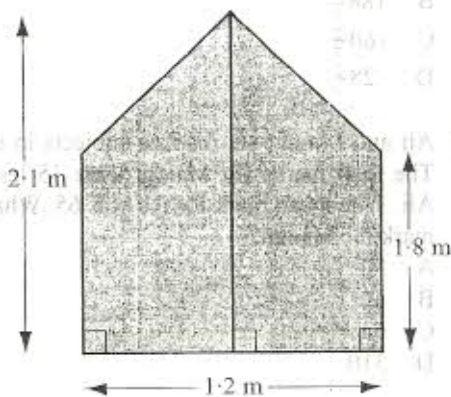
24. The diagram below represents a flower garden.



What is the area of the flower garden in m^2 ?

- A 36
B 60
C 65
D 120

25. The diagram below represents a door which was painted on the outside.



What was the area painted, in square metres?

- A 1.17
B 2.16
C 2.34
D 2.52

26. Which one of the following groups of measurements represents length of sides of a right angled triangle?

- A 7 cm, 12 cm, 13 cm
B 5 cm, 4 cm, 25 cm
C 3 cm, 4 cm, 6 cm
D 12 cm, 16 cm, 20 cm

27. A cylindrical container has an internal radius of 7 cm and a height of 5 cm. What is its capacity in litres?

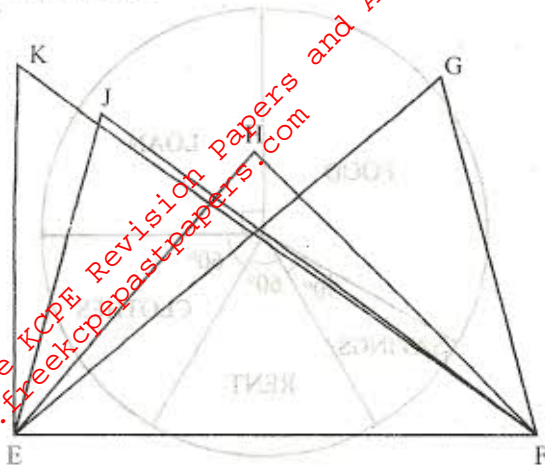
(Take $\pi = \frac{22}{7}$).

- A 0.77
B 7.7
C 77
D 770

28. A farmer used $\frac{1}{2}$ of her land for planting maize, $\frac{1}{5}$ for planting beans, $\frac{1}{3}$ of the remainder for grazing and the rest for horticulture. If the farmer used 10 ha for grazing, how much land does she have?

- A 100 ha
B $33\frac{1}{3}$ ha
C 30 ha
D $11\frac{1}{30}$ ha

29. Which one of the triangles below has two of its sides measuring 5 cm and 7 cm while one of its angles measures 75° ?



- A Triangle KEF.
B Triangle JEF.
C Triangle HEF.
D Triangle GEF.

30. In a certain company candidates G, K and L contested for a seat. The number of those who voted for K was 800, which was 0.25 of the total votes. Out of the remaining votes, L received 0.03 more than G. How many more votes than K did the winning candidate get?

- A 72
B 364
C 436
D 448

31. The table below shows the second class train fare from station M to P through station N. The pupils paid fare as children.

DESCRIPTION	SECOND CLASS		
	FARE ONLY	FARE & BEDDING	ALL INCLUSIVE
M-P ADULT.....	1 000-00	1 275-00	2 275-00
CHILD.....	500-00	775-00	1 475-00
M-N ADULT.....	695-00	970-00	1 570-00
CHILD.....	350-00	625-00	1 045-00

Three teachers accompanied 45 pupils in the train. The pupils paid fare only, from station M to P. Two of the teachers paid all inclusive rate from station M to P. One teacher who alighted at station N paid for fare and bedding. How much money did they pay altogether?

- A sh 25 195
B sh 28 020
C sh 28 325
D sh 50 520

32. The hire purchase price of a cupboard was 25% more than the marked price. Karani bought the cupboard on hire purchase terms.

He paid a deposit of sh 2 000 and eight equal monthly installments of sh 650. What was the marked price of the cupboard?

- A sh 4 160
B sh 5 400
C sh 5 760
D sh 9 000

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33. Construct a semi-circle whose diameter EF is given below. Construct a line from E to meet the semi-circle at G such that angle FEG is 30° . Construct a line from F to meet the semi-circle at H such that angle EFH is 20° . Join points E to H, H to G and G to F.



What is the length of line GH?

- A 3.0 cm
- B 3.9 cm
- C 5.3 cm
- D 5.7 cm

34. A lorry has mass of 7.7 tonnes when loaded with 75 bags of rice. There are 33 bags each with mass of 85 kg and the rest have mass of 45 kg each. What is the mass of the lorry, in tonnes, when empty?

- A 3.005
- B 4.695
- C 4.850
- D 12.395

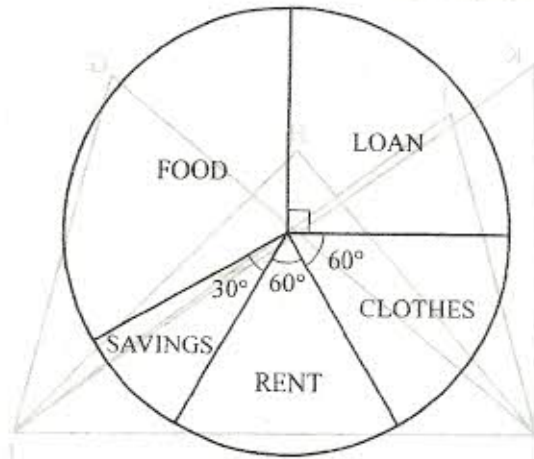
35. There were m men in a bus. The number of children in the bus was three times that of men but eleven more than that of women. The total number of women, men and children in the bus was 45. Which one of the equations below can be used to find the number of men that were in the bus?

- A $5m - 11 = 45$
- B $4m + 11 = 45$
- C $7m + 11 = 45$
- D $7m - 11 = 45$

36. Four workers take 10 hours to complete a certain job. How many more workers would be hired in order that they do the same job in 2 hours?

- A 20
- B 24
- C 16
- D 1

37. The pie-chart below shows how Kesenet spent her salary.



How much more did she spend on loan than on rent if she spent sh 4 000 on food?

- A sh 5 000
- B sh 3 000
- C sh 2 000
- D sh 1 000

38. Which two of the following statements are true about all triangles?

- (i) All angles are equal.
- (ii) Sum of interior angles is 180° .
- (iii) One angle is 90° .
- (iv) Sum of exterior angles is 360° .

- A (i) and (ii)
- B (i) and (iii)
- C (ii) and (iv)
- D (iii) and (iv)

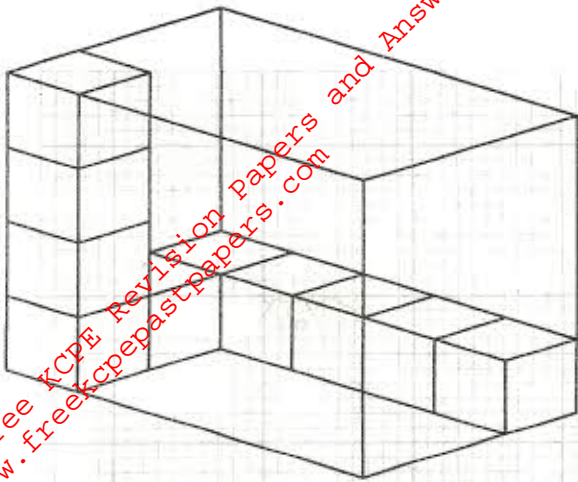
39. There is a 25% loss when an article is sold at sh 225. At what price should it be sold in order to make a profit of 5%?

- A sh 315.00
- B sh 300.00
- C sh 295.31
- D sh 236.25

40. A playing field measured 50 m by 30 m. The measurements of the sides of the field were later increased to 80 m by 60 m. What was the percentage increase of the area of the field?

- A 4 800
- B 3 300
- C 900
- D 220

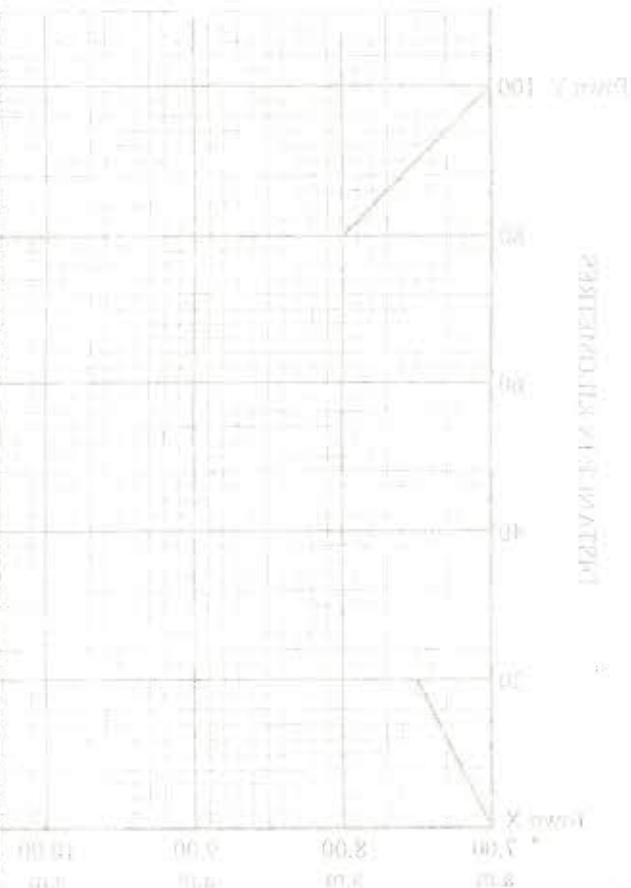
41. How many more cubes are needed to fill the box below?



- A 10
- B 22
- C 50
- D 60

Working Space

The graph below shows part of the journey made by a train. The graph shows the distance in km on the vertical axis and the time in hours on the horizontal axis.

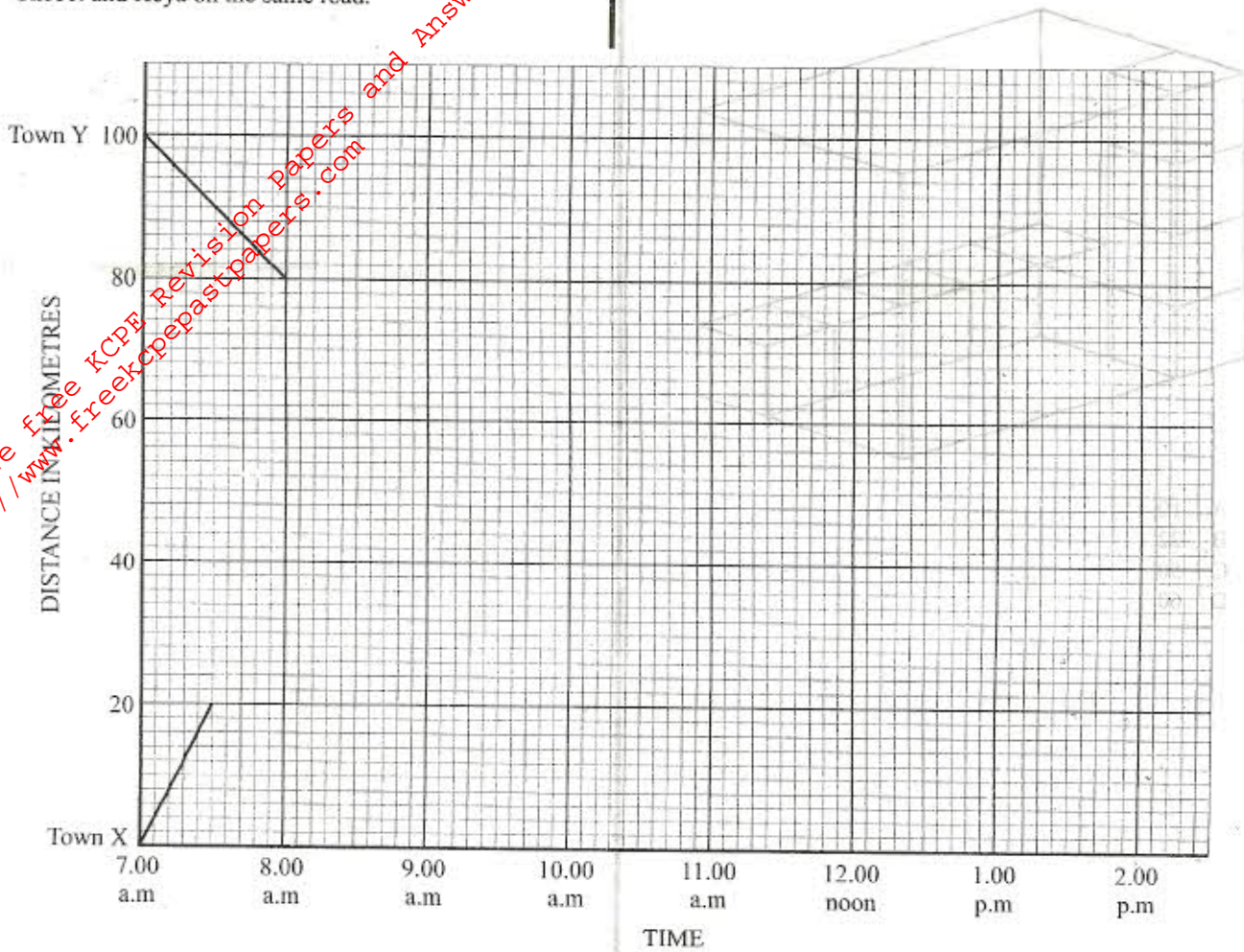


At what time did they meet?
 a. 8:30 a.m.
 b. 9:10 a.m.
 c. 8:40 a.m.
 d. 9:00 a.m.

A train travelled from town Y to town X with a constant speed.
 A car travelled from town X to town Y. After
 covering 30 km he rested for 30 minutes. He then
 continued at an average speed of 40 km/h.
 They met at the point of the journey.

42. The graph below shows part of the journeys made by Chebet and Keya on the same road.

Working Space



Chebet travelled from town Y to town X at a constant speed.

Keya travelled from town X to town Y. After covering 20 km he rested for 30 minutes. He then continued at an average speed of 40 km/h.

Complete the graphs of the journeys.

At what time did they meet?

- A 9.00 a.m
- B 8.40 a.m
- C 9.10 a.m
- D 8.50 a.m

43. Line PQ below is the base of the parallelogram PQRS. Complete the parallelogram in which, angle QPS = 60° and line PS = 4.5 cm.



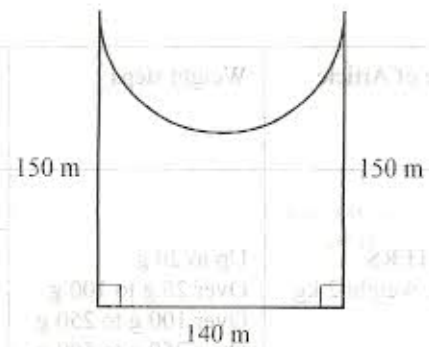
What is the height of the parallelogram in cm?

- A 3.9
B 5.4
C 6.0
D 9.1
44. Karim paid sh 950 for an item after getting a discount of 5%. What would have been the percentage discount, if Karim had paid sh 925 for the item?
- A $2\frac{12}{19}\%$
B $7\frac{1}{2}\%$
C $7\frac{12}{19}\%$
D $8\frac{4}{37}\%$
45. A motorist driving at 60 km/h was expected to arrive on time in town A, 200 km away. After driving for one hour, the car got a puncture and it took 20 minutes to change the wheel.

At what speed in km/h did he drive after repairing the puncture if he had to arrive at the expected time?

- A 105
B 100
C 70
D $52\frac{1}{2}$

46. The figure below represents a plot of land bounded by three straight edges and a semi-circle. Three strands of wire are used to fence the plot.



What is the length, in metres, of the wire used? (Take $\pi = \frac{22}{7}$).

- A 660
B 1 980
C 2 640
D 24 420

47. Which one of the following expressions is the simplest

form of $\frac{7(2r+3)+4r-3}{2(r+1)+4r+7}$?

- A $\frac{6r+6}{2r+3}$
B $\frac{6r+8}{2r+3}$
C $\frac{9r}{3r+4}$
D $2\frac{1}{2}$

48. The table below shows the rates of sending letters and postcards through a post office in year 2004.

Working Space

Surface Mail									
Type of Article	Weight (kg)	East African Zone		The rest of African Zone		Europe, Middle & Near East		Australia, America & Far East	
		Sh	cts	Sh	cts	Sh	cts	Sh	cts
LETTERS Max. weight kg	Up to 20 g	40	00	45	00	50	00	60	00
	Over 20 g to 100 g	80	00	90	00	100	00	130	00
	Over 100 g to 250 g	135	00	160	00	180	00	230	00
	Over 250 g to 500 g	240	00	280	00	320	00	410	00
	Over 500 g to 1 kg	400	00	465	00	530	00	680	00
	Over 1 kg to 2 kg	650	00	760	00	860	00	1 095	00
POSTCARDS	Standard size	20	00	20	00	25	00	35	00
	Large size	40	00	45	00	50	00	70	00

Makena sent the following letters and postcards:

Two letters each weighing 21g; one to Tanzania and another to Australia.
 Four letters each weighing 280 g; one to Europe, two to America and one to Nigeria.
 Three large postcards; one to Australia, one to Far East and one to America.

How much did she pay for postage altogether?

- A sh 1 840-00
- B sh 1 730-00
- C sh 1 820-00
- D sh 1 430-00

49. The volume of an open rectangular tank is 24.3 m^3 . The tank has a square base. The height of the tank is 2.7 metres. What is the surface area of the tank in square metres?

- A 32.4
- B 41.4
- C 50.4
- D 178.2

50. Janet borrowed some money at a simple interest of 12% p.a. After 18 months, she had paid a total interest of sh 5 400. How much money had she paid altogether?

- A sh 35 400
- B sh 30 000
- C sh 24 600
- D sh 7 900