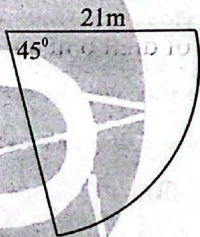




**SECTION A (20mks)**

1. Jayden had 32 shillings in his wallet. He withdrew 20 shillings to buy a pencil, later sold some old books and received 16 shillings which he added to his wallet and finally deposited 10 shillings into his savings account but the bank charged a 2 shilling fee from his wallet. What was his new wallet balance?  
A. 16                                      B. 18  
C. 14                                      D. 28
2. The temperature of a piece of ice was  $-8^{\circ}\text{C}$ . The temperature was further reduced by  $5^{\circ}\text{C}$ . What was the final temperature of the ice?  
A.  $-3^{\circ}\text{C}$                                       B.  $3^{\circ}\text{C}$   
C.  $-13^{\circ}\text{C}$                                       D.  $13^{\circ}\text{C}$
3. Work out:  
 $0.16^3$   
A. 0.0256                                      B. 0.004096  
C. 0.00256                                      D. 0.00496
4. A septic tank in the shape of a cube of sides 4.5m is to be constructed in a school compound. Determine the volume of soil that will be excavated for the tank to fit exactly.  
A.  $20.25\text{m}^3$                                       B.  $91.125\text{m}^3$   
C.  $40.50\text{m}^3$                                       D.  $182.250\text{m}^3$
5. Evaluate:  
 $(2xy)^3$   
A.  $2xy^3$                                       B.  $2x^3y^3$   
C.  $8xy^3$                                       D.  $8x^3y^3$
6. A county intends to construct cubical stalls in a market. Each stall is expected to occupy a space of  $42.88\text{m}^3$ . What is the length of each stall?  
A. 3.5                                      B. 6.55  
C. 1838.69                                      D. 78843.22
7. By using the law of indices, solve for the value of c in the following equation;  
 $3^{2c} \times 3^c = 9$   
A.  $\frac{2}{3}$                                       B. 2  
C. 3                                      D.  $\frac{1}{3}$
8. After sharing some money Grade 9 learners had saved, each learner received Sh.190.80. How many significant digits are in the money that each learner received?  
A. 3                                      B. 4  
C. 5                                      D. 6
9. The thickness of a wire is recorded in standard form as  $8.57 \times 10^{-3}$ . Which of the following shows the number in ordinary (decimal) form?  
A. 8570                                      B. 0.857  
C. 0.00857                                      D. 0.000857
10. A teacher's savings in a co-operative society was sh.125 000. If the teacher saved sh.5 000 more, find the percentage increase of his savings.  
A. 4%                                      B. 40%  
C. 20%                                      D. 80%
11. Anita 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
12. 8 men can build a wall in 12 days. Find how long it will take 6 men working at the same rate to build the wall?  
A. 9                                      B. 12  
C. 15                                      D. 16
13. Calculate the perimeter of the following sector.  
Use  $\pi$  as 3.142  
  
A. 173.2                                      B. 117  
C. 58.5                                      D. 16.5
14. A business man borrowed sh120 000 from a bank. The bank charged simple interest at the rate of 16% per annum. He repaid the loan after three years. Find the interest he paid.  
A. Sh.57,600                                      B. Sh.67,308  
C. Sh.76,800                                      D. Sh.19,200
15. Halima is p years old now. She is y years older than her son. Which of the following expressions shows the sum of their ages in ten years' time?  
A.  $P - y + 10$                                       B.  $P + y + 20$   
C.  $2P + y + 20$                                       D.  $2p - y + 20$
16. The distance between two towns on a map is 5.4cm. If the scale used to draw the map is 1cm represents 1km, find the actual distance between the two towns.  
A. 5.4 km                                      B. 54 km  
C. 540 km                                      D. 0.54 km

17. The minute hand of a clock has a length of 10.5cm. It moves from 12.00noon to 12.45pm. Find the area traced by the minute hand.  
 A. 259.88 cm<sup>2</sup>      B. 346.4 cm<sup>2</sup>  
 C. 16.5 cm<sup>2</sup>      D. 519.5 cm<sup>2</sup>

18. A shopkeeper sells two types of exercise books. A small exercise book which costs sh. 50, while a large exercise book costs sh.80. A learner bought 7 exercise books in total and paid sh. 470. How many small and large exercise books did the learner buy?  
 A. 3 small and 4 large  
 B. 4 small and 3 large

C. 5 small and 2 large  
 D. 2 small and 5 large  
 19. A minibus costs sh.900000. Due to wear and tear, its value depreciates at the rate of 5% every year. What will be its value after two years?

A. Sh.945,000      B. Sh.1,026,000  
 C. Sh855,000      D. Sh.812,250

20. A regular polygon has a sum of interior angles equal to 1440°. What is the number of sides of the polygon?

A. 8 sides      B. 9 sides  
 C. 10 sides      D. 12 sides

**SECTION B (80mks)**

21. During a by-election in a certain constituency in Kenya, the registered voters were 6,907,054. The winning candidate (Candidate A) received 5,709,894 votes, while the second candidate received the remaining valid votes. If 90,390 of the cast votes were spoiled:

a) How many votes did the second candidate get, written in words? (1 mark)

b) Write the number of votes received by Candidate A to the nearest million. (1 mark)

c) What is the total value of digit 6 in the number of registered voters? (1 mark)

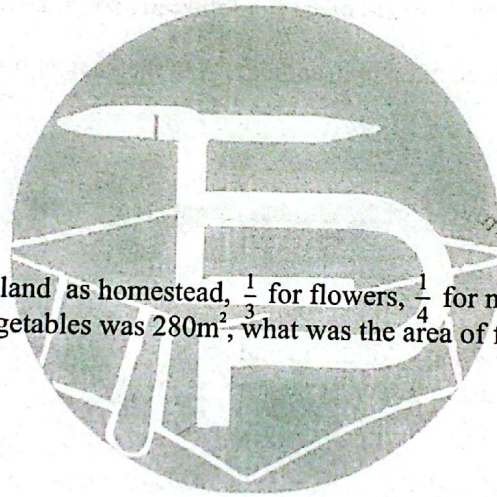
22. A cylindrical water tank has a height of 2.1 m and a radius of 1.4 m.  
 a) Determine the volume of the cylinder. (Use  $\pi$  as  $\frac{22}{7}$ ) (2 marks)

b) The cylinder has the same volume as a rectangular cuboid of length 3 m and width 2 m. What is the height of the rectangular container? (2 marks)  
 (Write your answer correct to 2 decimal places)

23. In her farm, Wambui had goats, sheep and cows in the ratio of 5 : 3 : 2. At the beginning she had 50 animals but later sold some of them leaving her with 36. If the number of goats, sheep and cows that remained were in the ratio of 2 : 1 : 1,
- a) How many sheep did she sell? **(3marks)**

b) Find the number of cows that remained. **(2marks)**

24. It takes 8 people 10 days to make 40 sweaters. How many more days would it take 5 people to make the same number of sweaters if they all worked at the same rate? **(4marks)**



25. Musau used  $\frac{1}{8}$  of his plot of land as homestead,  $\frac{1}{3}$  for flowers,  $\frac{1}{4}$  for napier grass and the remainder for vegetables. If the area of vegetables was  $280\text{m}^2$ , what was the area of flowers? **(3 marks)**

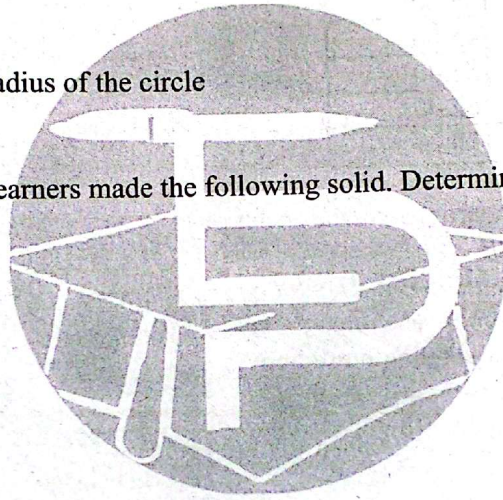
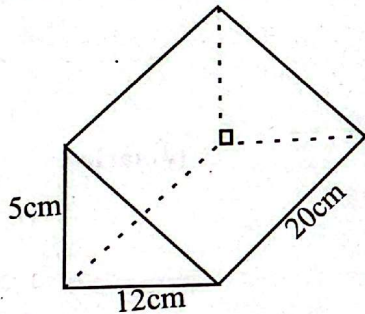
26. A man is 30 years older than his son. The sum of their ages is 70 years. In two years time, the sum of the man's age and twice the son's age will be 96. Find the current age of the man and the son. **(4marks)**

27. The length of the base of a triangle is  $(4x + 6)$ cm. The height is 5cm, if the area of the triangle is  $40\text{cm}^2$ , what is the actual length of the base? (2marks)

28. ABC is a triangle such that;  $AB = 5\text{cm}$ ,  $BC = 3\text{cm}$  and  $AC = 6\text{cm}$ .  
a) Construct triangle ABC and a circle passing through its vertices. (3marks)

b) What is the measure of the radius of the circle (1mark)

29. During a mathematics lesson, learners made the following solid. Determine its total surface area (5marks)



30. A cylinder has a volume of  $550\text{cm}^3$ . If the height of the cylinder is 7cm, what is its diameter? (4marks)

31. A ladder is leaning against a vertical wall. The foot of the ladder is 9 m away from the wall and the ladder reaches a height of 12 m on the wall.  
a) Find the length of the ladder. (2 marks)

b) If the ladder is extended so that its length becomes 15 m, how high will it reach on the wall (keeping the foot 9 m away)? (2 marks)

32. Eddy borrowed sh800 000 in a bank that charged compound interest at a rate of 10% per annum. For two years. (2marks)
- a) Calculate the interest paid for the 1<sup>st</sup> year.

b) How much money did he pay back at the end of the two years? (2marks)

33. The chart below shows rates for sending letters and parcels by speed post up to a maximum of 7kg.

Weight up to;	Kg	Amount
"	1	15.00
"	2	25.00
"	3	35.00
"	4	45.00
"	5	55.00
"	6	62.00
"	7	70.00

Kamau sent the following articles by the speed post;

- One letter weighing 250g
- One packet of text books weighing 5kg 400g
- A parcel containing a woofer weighing 3.5kg

How much did she pay for sending these items?

(4marks)

34. Using a compass and a ruler only:

a) Construct a regular hexagon ABCDEF with each side measuring 4 cm in the space provided. (3marks)

b) On the hexagon draw a line from point B to point E, what is the measure of the line? (2 marks)

35. The tables below show equations and the corresponding values of  $x$  and  $y$ .

$$y = 9 - x$$

$x$	0	3	6
$y$	9		

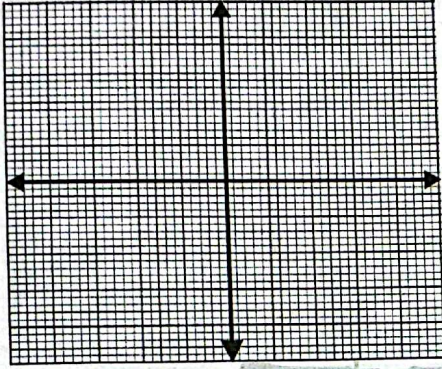
$$2x + 3y = 21$$

$x$	0	3	6
$y$	7		

a) Fill the missing values of  $y$  in each table

(2marks)

b) On the grid provided below, draw the graphs of the equations;  $y = 9 - x$  and  $2x + 3y = 21$  and use them to find the values of  $x$  and  $y$  at their point of intersection. (3 marks)



36. The height of a building on a plan is 6cm, the actual height of the building is 150m. Find the scale used on the plan in ratio form. (2marks)

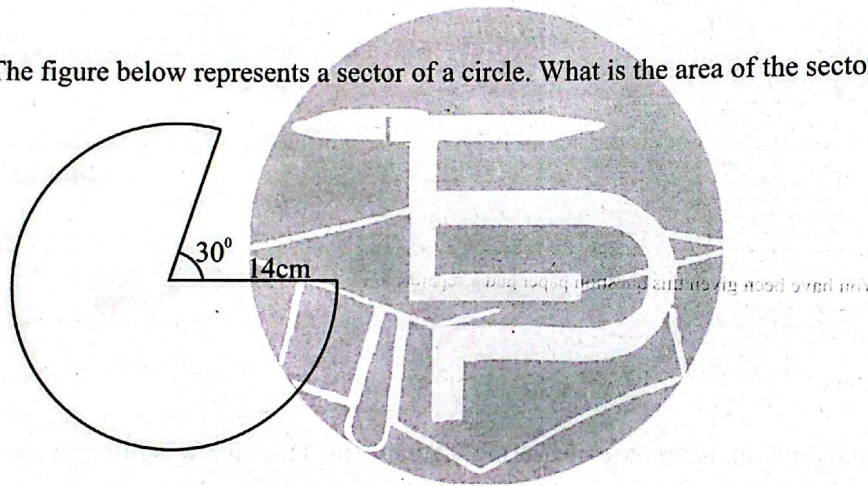
37. A rectangular tank of height 2.5m has a base measuring 1.5m by 2m. This tank was full of water. After a day's use, the level of water fell to 2.1m.  
a) What is the capacity of the tank when full? (3marks)

b) How many litres of water were used? (2marks)

38. James used manilla papers to make a closed cylinder during a mathematics lesson on common solids. The cylinder had a diameter of 7cm and a height of 8cm. (2marks)
- a) Draw the net of the closed cylinder

b) Use the net to find the total surface area of the cylinder. (Use  $\pi = 3.142$ ) (3marks)

39. The figure below represents a sector of a circle. What is the area of the sector? (4marks)



40. The price of petrol per litre for seven months was as shown:

Month	Jan	Feb	Mar	Apr	May	Jun	July
Price	(Sh)179	161	209	184	196	211	175

a) Calculate the median for the price of petrol (2marks)

b) What was the mean price of the petrol? (2marks)