



THE **SIPRO EDUCATIONAL SERVICES LTD**  
**SPECIAL SET EXAMINER'S INTERVIEW 2024**

**SUBJECT: MATHEMATICS**

Time Allowed : 1Hr 30Mins.

Teacher's name : \_\_\_\_\_

Contact(s) : \_\_\_\_\_

**Instructions:**

- ✓ Attempt all questions.
- ✓ All telephones **MUST** be switched off.

**SECTION A: 40 MARKS**

Questions 1 to 20 carry two marks each.

1. Work out:  $3276 + 598$

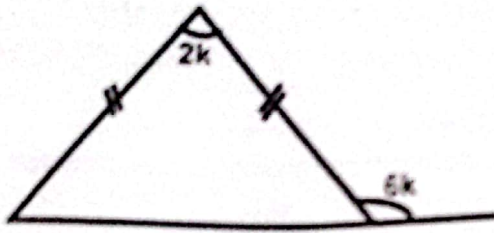
2. Write **746,019** in words.

3. Complete the pattern:

1, 2, 10, 37, 101, 226, \_\_\_\_\_

4. Solve for e:  $49 - 11e = 5$

5. In the diagram below, find the value of  $K$ .



6. Sanyu had  $\frac{4}{9}$  of a cake and she gave  $\frac{1}{3}$  of it to Agatha. What fraction of the cake remained?

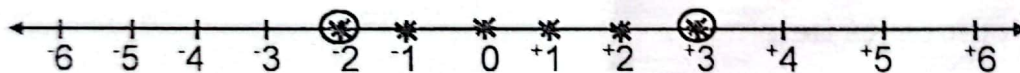
7. Work out the difference between the two numbers whose standard forms are  $1.73 \times 10^3$  and  $7.3 \times 10^2$ .

8. The perimeter of a rectangle is 12m. If its width is half the length, calculate the area of the rectangle.

9. Given that set  $W = \{v, q, z, n\}$ , list the proper subsets of set  $W$ .

10. The scale on a map is 1:100,000. Calculate the actual area of a farm in  $\text{km}^2$  if its area on the map is  $16\text{cm}^2$ .

11. Write the inequality for the solution set shown on the number line below.



12. Below are numbers written on manilla cards 2, 6, 8, 15, 7, 10, 11, 6 and 28; what is the probability of picking a triangular number at a random?

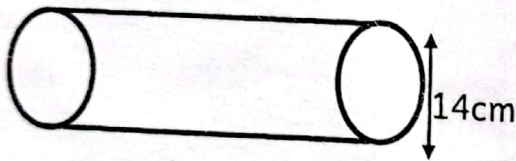
13. 16 books cost sh. 48,000. How much will one pay for  $2\frac{1}{4}$  dozen of books?



14. Given that  $a = 3$ ,  $b = 2$  and  $e = -4$   
Evaluate:  $b^e \times b^a$

15. The exterior angle of a regular octagon is  $(5p+15)^\circ$ . Find the value of  $p$ .

16. The cylindrical pipe below has both ends open. If its total surface area is  $880\text{cm}^2$ . Calculate its height.

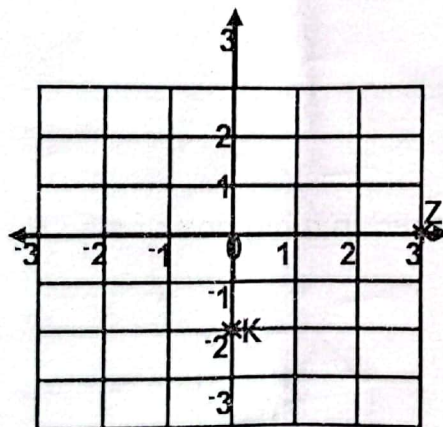


17. Work out:  $4.9 - 1.6 + 21.56$

18. Electric poles were planted on both sides of the road in a straight line covering a distance of 1188m at 12 metres interval. How many poles were planted?

19. If 10 years are subtracted from the present age of Moses and the remainder divided by 14, then you get the present age of his grandson Andrew. If Andrew is 9 years younger than Jane whose age is 14 years, then what is the present age of Moses?

20. Study the co-ordinate graph carefully and answer the question that follows.



Name the co-ordinates for points;

K = \_\_\_\_\_

Z = \_\_\_\_\_

### SECTION B: 60 MARKS

*Answer all questions in this section.*

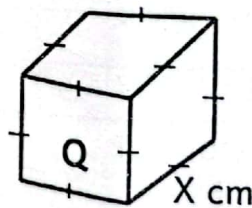
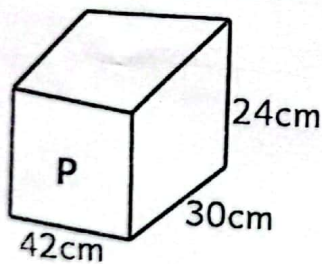
*Marks for each part of the question are indicated in the brackets.*

21. The total cost of 5kg of sugar and 3kg of rice is sh. 27,000. The difference between unit price of rice and that of sugar is sh. 1,000. Calculate the unit price of sugar and rice. (05 Marks)



22. A motorist left town A to town B at a steady speed of 30km/h. He returned to town A at a steady speed of 40km/h. If he used one hour 45 minutes to and from, calculate the total distance the motorist covered.
- (05 Marks)

23. 140 boxes of size Q were packed in a big box of size P as shown below.



- a) Find the value of X.

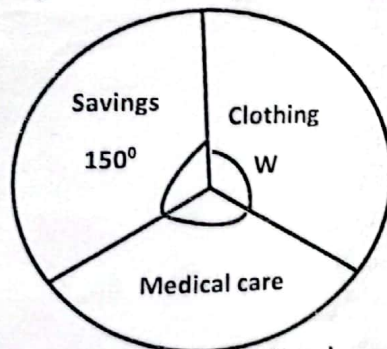
(03 Marks)

- b) Calculate the volume of box Q.

(02 Marks)

24. A group of 100 goats and hens was grazing together. If Ssemanda counted a total of 320 legs, how many goats and hens were in the group? (05 Marks)

25. The pie chart below shows how Sandra spends her salary of sh. 144,000. Study it carefully and answer the questions that follow.



- a) If she spent sh. 36,000 on medical care per month, find the value of  $W$ . (03 Marks)

- b) How much does she spend on medical care and clothings? (02 Marks)

26. Given that  $a = 6p$  and  $p = 4$ .

a) Find the value of  $2a + 3p$

(02 Marks)

b) Solve and give the solution set for  $2 - 3w \geq 14$

(03 Marks)

27.a) Work out:

$$8.12 + 7.88$$

$$9.4 - 5.4$$

(03 Marks)

b) A water tank has two inlet pipes that pour water at 4 and 8 litres per minute respectively and one outlet that can deliver water at a rate of 6 litres per minute. How long will the water tank take to fill if its capacity is 720 litres?

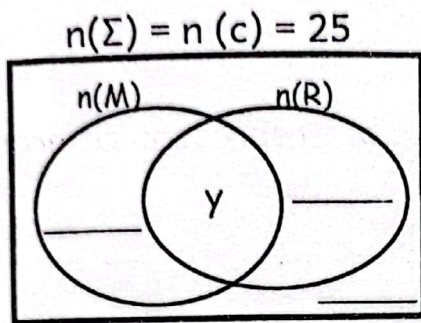
(03 Marks)



8. At a birthday party of 25 guests, all guests ate cassava. 12 guests ate matoke and cassava only (M), 8 guests ate rice and cassava only (R). Y guests ate all the three kinds of food and 2 guests ate cassava only.

a) Complete the venn diagram.

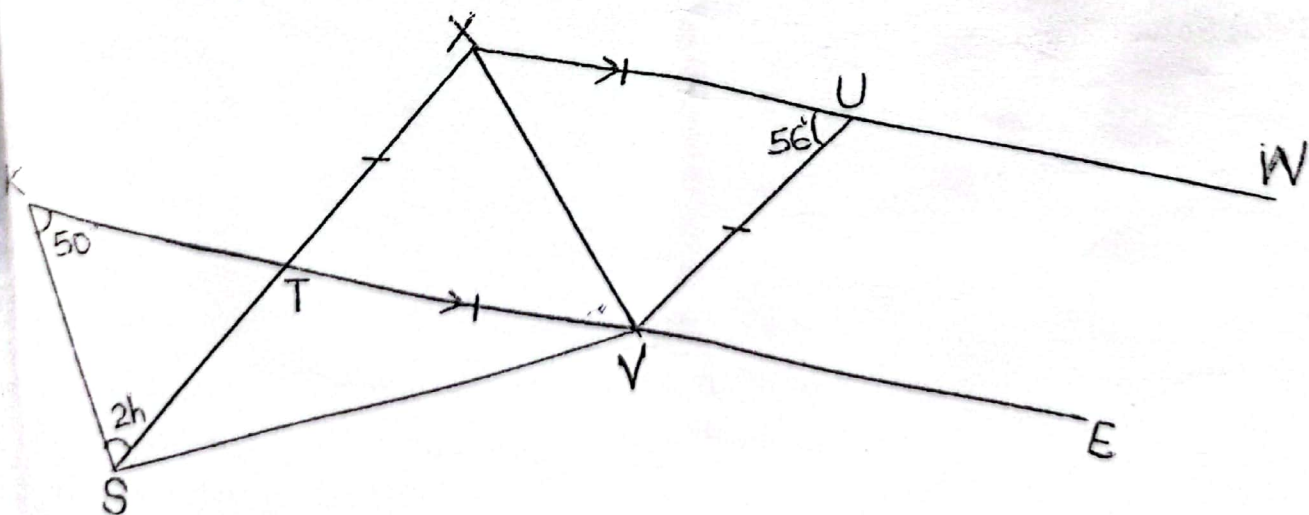
(03 Marks)



b) How many guests liked atleast two kinds of food?

(02 Marks)

29. In the diagram below, line  $XW$  is parallel to line  $KE$ . Study it carefully and answer the questions that follow.



a) Find the value of  $h$ .

(02 Marks)

b) Calculate the size of angle XVE.

(03 Marks)

30. In the following equations, the letters a, b, c represent different numbers.

$$1^3 = 1$$

$$a^3 = 1+7$$

$$3^3 = 1+7+b$$

$$4^3 = 1+7+c$$

What is the numerical value of  $a+b+c$ ?

(05 Marks)

31.a) Solve:  $2(x-1) = 3$  (finite 7)

(02 Marks)

b) A toad fell into a ditch of 40cm depth. For every 5cm it climbs, it falls 3cm back. How many times will it jump until it gets out of the ditch?

(02 Marks)

32. Using a ruler, a pencil and a pair of compasses only, construct a quadrilateral PQRS where  $PQ = 8\text{cm}$ ,  $PS = 5\text{cm}$ ,  $\angle SPQ = 90^\circ$ , angle  $PQR = 60^\circ$  and angle  $RSP$  is a right angle. (05 Marks)