S.2 MATHEMATICS HOLIDAY WORK

1. The gradient of a line AB is -1. If A and B are (3, 5) and (x, 4) respectively, find value of x.

2. A right angled triangle has perpendicular sides of 6cm and (x + 1) cm. If its Area is 9cm², find the value of x.

3   The mean of numbers, a, 70 and 80 is 75. Find the value of a.

4. Solve for x: $\dfrac{3}{2} - \dfrac{5x}{3} = 8 + \dfrac{x}{2}$

5. Two prize winners share shs 4500 in the ratio x: x + 1. The smaller prize as sh. 1800. Find value of x.

6. Given that w * p = $\dfrac{w + p}{w - p}$,   find the value of (5 * 3) * -2.

7. The function h is defined as $h(x) = \dfrac{4x-3}{x^2-16}$. Find
    (i)   h(-3)
    (ii)   the values of x for which h(x) is meaningless.

8. Solve the inequality $3x + 7 \leq 1$. Represent your solution on the number line.

9. Denise bought a kettle and a knife each at Shs. 6000. She later sold a kettle at a loss of 20% and a knife at a profit of 25%. Find her net profit

10.(a) The length of a rectangular carpet is 5 metres more than its width. If its area is 24m², find the width of the carpet.

   (b) A family spends its income on the following items in a month.

Item	Food	Rent	Transport	Others
Amount (shs)	35,000	12,000	10,000	15,000

   Show the family's expenditure in a pie chart.

11.   (a) Given that $\text{Log}_{10} 7 = 0.845$ and $\text{Log}_{10}2 = 0.301$ Find $\log_{10}\left(\dfrac{49}{64}\right)$

(b) Two prize winners share shs 4500 in the ratio x: x + 1. The smaller prize was sh. 1800. Find value of x.

12.   A plane flies from airstrip K due North for 350 km to air strip R. It then flies on a bearing of 295° for 250 km to air strip N. From there it flies on a bearing of 090° for 500 km to another air strip M.

(a)   Draw a sketch diagram to show the route of the plane.

(b)   Draw accurate diagram using 1cm to represent 50km.

(c)   From your diagram, find the distance and bearing of air strip K from M.

13. Using a ruler, a pencil and a pair of compasses only,

(a) Construct a triangle ABC, with AB = 8cm, BC = 12cm and angle BAC = 120°.

(b) (i) draw a perpendicular line to BC from A. The perpendicular meets BC at a point D.

(ii) measure the distance AD and find the area of triangle ABC.

14. In a class, there are 50 students, 24 students opted to do Commerce (C), 29 students opted to do Fine Art (F) and 26 students opted to do Luganda (L). 9 did both Commerce and Find Art, 13 did both Luganda and Find Art and 11 did both Commerce and Luganda. Each of these students did at least one of the three subjects.

(a) Represent the above information on a Venn – diagram.

(b) Find

(i)   how many students opted for all the three subjects.

(ii)   the number of students who did at least two of these subjects.

(iii)   how many students did only one subject.

END