

MENGO SENIOR SCHOOL
TERM THREE 2023
HOLIDAY PACKAGE S.2
MATHEMATICS

1. Jane bought $(2x-1)$ cups for shs. 300
 - (a) Write down an expression in terms of x for the cost of each cup.
 - (b) If she sold $(x + 2)$ cups for shs 300 in January. Write down an expression in x for selling price of each cup.
 - (c) Given that she only made a profit of shs. 10 on each cup, form an equation that represents this information and show that it reduces to $2x^2 - 27x + 88 = 0$

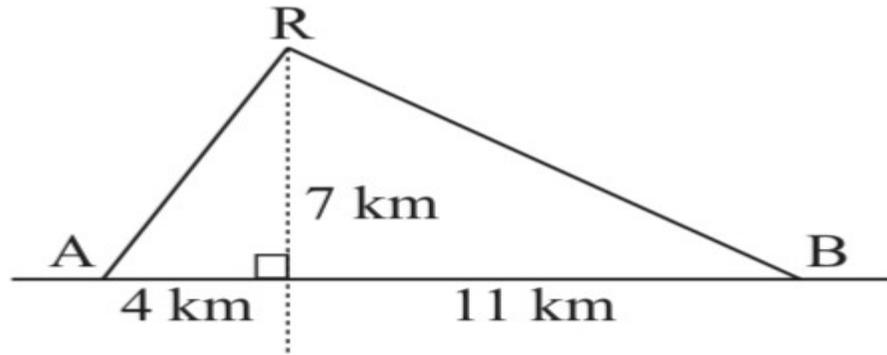
2. In the swimming pool, 4 people can swim butterfly style and 11 can swim free style. The people who can swim butterfly are a subset of those who can swim free style. There are 15 people in the pool in total.



- (a) Display this information on a venn diagram
 - (b) Find the number of people who can swim
 - (i) free style but not butterfly style.
 - (ii) neither stroke.

3. A farmer has a paddock which is **350m** long and **280m** wide. She walks along two sides checking the electric fence then returns by walking diagonally across the paddock. How far has she walked?

4. A reservoir R supplies two towns A and B with water. New piping from R to each town is required. The towns are connected by a straight road through A and B and the reservoir is 7km from this road



- (a) Find the distance AR and BR (to the nearest m)
- (b) Find the total cost of the new pipelines given that each 100m will cost Shs. 4,000,000
5. A sector of a circular garden has radius 12m and angle 135 degrees. Determine its area and perimeter.
6. A rectangular chicken yard was built against an existing shed wall. 30m of fencing was used to enclose 108 meters squared. Find the dimensions of the yard.



7. A class of 32 – learners is having trouble with organizational skills and keeps forgetting to do their Chemistry research work. The Chemistry teacher decides to give a fair punishment after school lessons each time they forget to do research work. The first week everyone forgets. The following week, 4 learners remember to do work, the next week after that 4 more remember. It continues like that.

a) Determine the number of students that will serve punishment after 5

weeks. b) In which week will the entire class remember to do their research work?

8. Hindu is flying her drone twice as high as it is far away from her horizontal. The length of the hypotenuse is square root of 45. How high and how far away is the drone flying?



9. Hanson high school Administrator monitored and recorded bullying incidents in senior one class four the first seven weeks. He noted that the number of bullying incidents (N) reduced by 4 each week (W) and so on. If the total number of bullying incidents in the first week was 32.

You are required to draw a suitable graph and estimate the number of bullying incidents in the 8th week.

10. During a mathematics lesson, Mr. Atuma taught some learners how to rotate different shapes given the Centre and angle of rotation. You are requested to help the absentees catch up in the next lesson. Given the rectangle with vertices $A(3,3)$, $B(6,3)$, $C(6,5)$ and $D(3,5)$ to rotate through $90 - \text{degrees}$ about the origin. Use a graph paper to determine the vertices of the image rectangle hence confirm whether the shape remains the same after rotation.

11. A librarian discovered that the school library was lacking Biology and History text books. In her report to the Head teacher, she indicated that the number of Biology books (y) should exceed twice the History books(x) and the total number of Biology and History books should be utmost 20.



You are required to formulate any two inequalities and represent them on the graph paper by shading the unwanted region that doesn't satisfy the inequalities.

END

We wish you a happy holiday.