7.8.2021

HOMEWORK

1. Can a triangle be formed by line segments of lengths a, b and c, such that $a > b - c$?

Sol:- Let $a = 6$, $b = 2$, $c = 1$

$a > b - c$

$\Rightarrow 6 > 2 - 1 \Rightarrow 6 > 1$

And ~~But~~, $b + c > a$

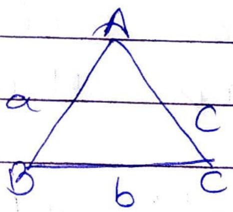
$\Rightarrow 2 + 1 < 6$

$\Rightarrow 3 < 6$

The triangle cannot be formed as it contradicts the rule that sum of two sides is always greater than the third side.

2. Can a triangle be formed by line segments of lengths a, b and c, such that $a = b - c$?

Sol:- In a $\triangle ABC$



$a + b > c$

$a + c > b$

$b + c > a$

given, $a = b - c$

$\Rightarrow a + c = b$

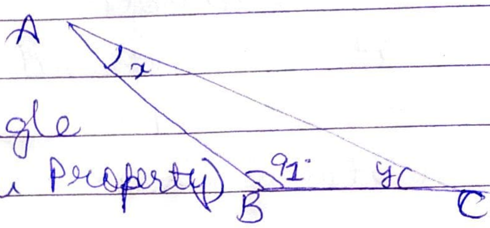
But this contradicts the rule that $a + c > b$. Therefore, the triangle cannot be formed.

3. The areas of parallelograms on the same base and between the same parallel lines are equal.

4. In a regular polygon, are all the exterior angles equal?

Sol:- Yes.

5. Can the sum of two angles of a triangle be less than the third angle?



Sol:- In ΔABC

$x + y + 91^\circ = 180^\circ$ (Angle sum Property)

$\Rightarrow x + y = 89^\circ$

Therefore, $x + y < 91^\circ$

So, the sum of two angles of a triangle can be less than the third angle.

6. If all the sides of a polygon are equal, then all its interior angles ~~mu~~ must be equal. Is the given statement true?

Sol:- Yes, the given statement is true.

7. If a circle passes through four points, then the four points are said to be concyclic.

8. Two circles cannot intersect in more than two point. [True / False]

Sol: True

9. Two quadrilaterals of equal ~~perimori~~ perimeters occupy equal areas. Is this statement always true?

Ans: No, the perimeters can be same, but the areas are not always same.

Let the sides of one rectangle be 4, 2, 4, 2.

∴ Perimeter = 2 (4+2) = 6 × 2 = 12 units.

Area = 4 × 2 = 8 units^2.

Let another rectangle has sides 3, 3, 3, 3

∴ Perimeter = 2 (3+3) = 6 × 2 = 12 units.

Area = 3×3 = 9 units^2

Therefore, the perimeter is same, but the areas are different.