Geometry
1ˢᵗ prep. – 2ⁿᵈ term

❖ If two straight lines intersect then the measures of each two vertically opposite angles are ==equal==

❖ The sum of the measures of the accumulative angles at a point is equal to ==360°==

❖ The simple line is the line that dos not ==cut itself==

❖ The non simple line is the line that ==cuts itself once or more==

❖ The polygon is a simple closed line that consists of three line segments or more

❖ The polygon is named according to the number of its sides

❖ Triangle   (3 sides)   Quadrilateral (4 sides)   Pentagon (5 sides)

   Hexagon (6 sides)   Heptagon   (7 sides)   Octagon   (8 sides)

   Nonagon (9 sides)   Decagon   (10 sides)

❖ Convex polygon has any interior angle ==less than 180°==

❖ Concave polygon has one or more angle ==more than 180°==

❖ The number of triangles of any polygon is $(n-2)$ n – number of sides

❖ The sum of measures of the interior angles of a polygon is $(n-2) \times 180$

❖ The sum of measures of the ==exterior== angles of a convex polygon of n sides = ==360°==

❖ The regular polygon has all ==sides and angles are equal==

❖ The measure of each interior angle of the regular polygon is $\dfrac{(n-2) \times 180}{n}$

❖ The number of diagonals of the polygon is $\dfrac{n(n-3)}{2}$

❖ In the quadrilateral ABCD if $m\angle(A) = 2m\angle(B) = m\angle(C) = 96°$

   Then $m\angle(D) = 120°$

❖ A parallelogram is a quadrilateral in which each two opposite sides are parallel

❖ The properties of a parallelogram:

   1-The sum of measures of each two consecutive angles in a parallelogram is 180°

   2- In a parallelogram each two opposite angles are equal in measure

   3- In a parallelogram each two opposite sides are equal in length

   4- The two diagonals in a parallelogram bisect each other

❖ **A rectangle is a parallelogram with a right angle and the diagonals are equal in length**

❖ **A rhombus is a parallelogram in which two adjacent sides are equal in length and the two diagonals are perpendicular**

❖ **A square is a parallelogram with a right angle and two adjacent sides equal in length and tow diagonals perpendicular and equal in length**

❖ **Theorem (1)**

The sum of the measures of the interior angles of a triangle is $180°$

❖ **The measure of the exterior angle of a triangle is equal to the sum of the measures of its Non adjacent interior angles**

❖ **In △ ABC if**

$m \angle A + m \angle B = m \angle C$ **then $m \angle C$ = 90° (right angle)**

$m \angle A + m \angle B > m \angle C$ **then $m \angle C$ is acute angle**

$m \angle A + m \angle B < m \angle C$ **then $m \angle C$ is obtuse angle**

❖ **Theorem (2)**

The ray drawn from the midpoint of a side of a triangle parallel to another side bisect the third side

❖ **Corollary**

The line segment joining the midpoints of two sides of a triangle is parallel to the Third side

❖ **Theorem (3)**

The length of the line segment joining the midpoints of two sides of a triangle is Equal to half the length of the third side

❖ **The image of the point (X,Y) by reflection in the X – axis is $(X,-Y)$**

❖ **The image of the point (X,Y) by reflection in the Y – axis is $(-X,Y)$**

❖ **The image of the point (X,Y) by reflection in the origin point is $(-X,-Y)$**

❖ **The image of the point (X,Y) by translation (K,L) is $(X+K,Y+L)$**

with my Best wishes
Mr. Mahmoud taha