The National Orthodox School Shmaisani

Name: ***worksheet* (1) *Math***

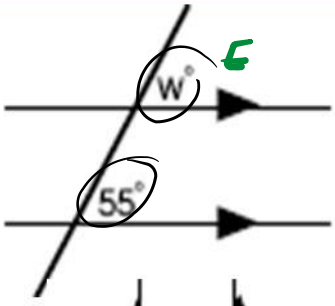
Date: **Grade-Section:7 (A)**

Objectives: Identify the different types of angles formed by two parallel lines and a transversal such as corresponding angles, alternate angles and allied angles.

Angles on Parallel Lines

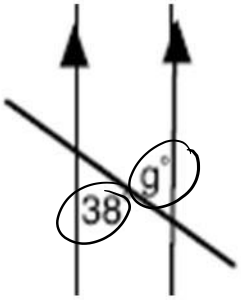
- **Corresponding angles** on parallel lines are equal

  w = 55°



- **Alternate angles** on parallel lines are equal

  g = 38°

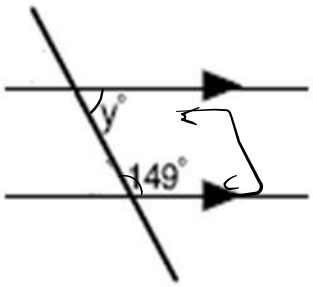


- **Co-interior angles** on parallel lines add to 180° (allied angles)

  y + 149° =180°

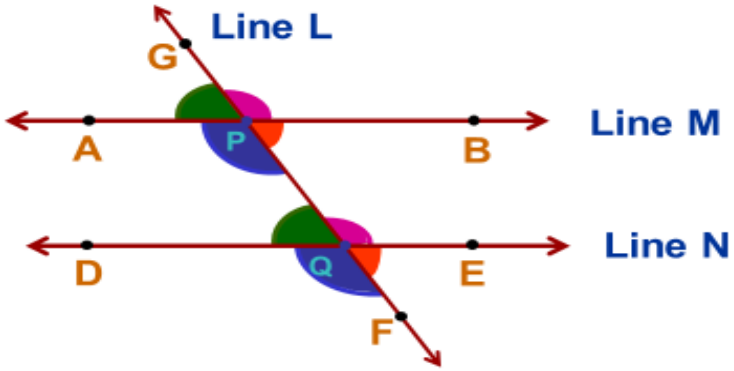
  y = 180° -149°

  y = 31°



الزوايا المتناظرة Corresponding Angles

When two parallel lines are cut by a **transversal**, pairs of **corresponding angles** are formed.



$\angle GPB = \angle PQE$

$\angle GPA = \angle PQD$

$\angle BPQ = \angle EQF$

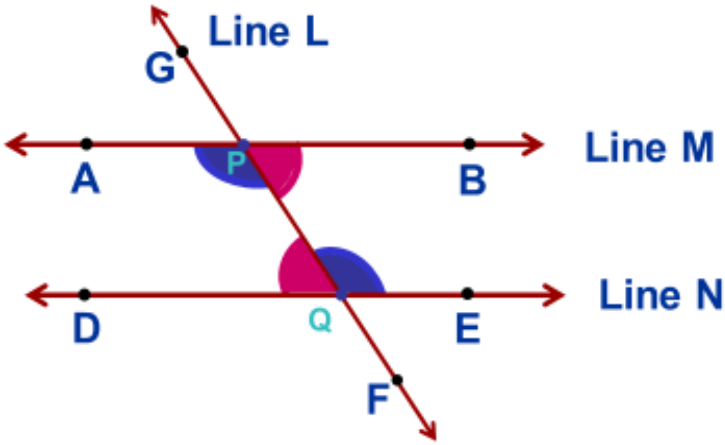
$\angle APQ = \angle DQF$

Four pairs of corresponding angles are formed.

Corresponding pairs of angles are **congruent**.

الزوايا المتبادلة داخليا Alternate Interior Angles

Alternate angles are formed on **opposite sides** of the transversal and **at different intersecting points**.



$\angle BPQ = \angle DQP$

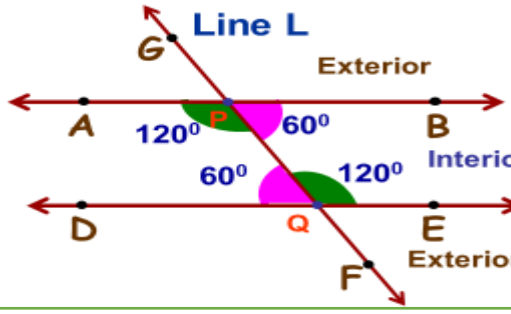
$\angle APQ = \angle EQP$

Two pairs of alternate angles are formed.

Pairs of alternate angles are congruent.

(الزوايا المتحالفة) same side Interior Angles (Allied Angles)

The angles that lie in the area between the two parallel lines that are cut by a transversal, are called **interior angles.**



$\angle BPQ + \angle EQP = 180^0$

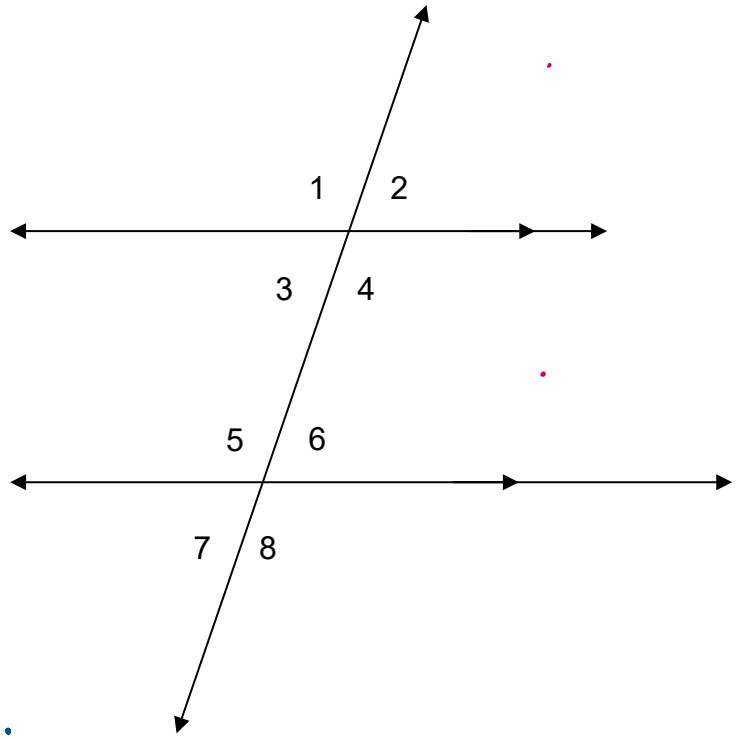
$\angle APQ + \angle DQP = 180^0$

A pair of interior angles lie on the **same side** of the transversal.

The measures of interior angles in each pair add up to 180^0.

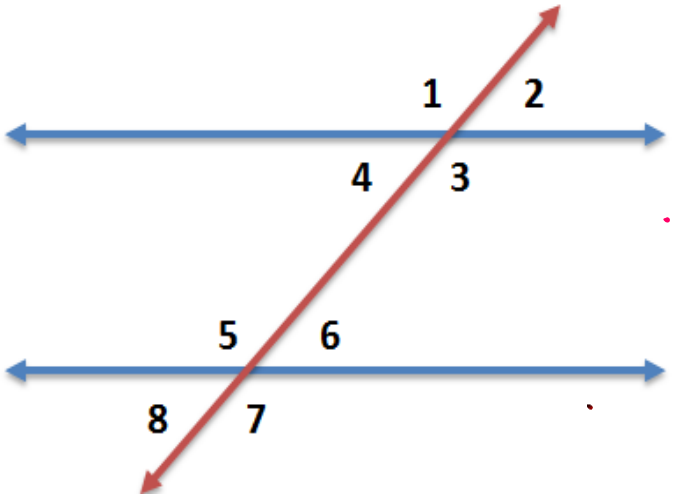
Exercise 1: From the diagram below, If m<1=120°,

Find all the remaining angle measures.



Exercise 2: From the diagram below,

Identify all the pairs of each angle type.

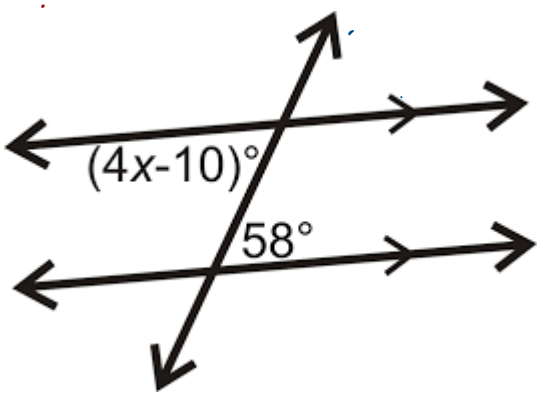


1) Corresponding Angles (There are 4 pairs)

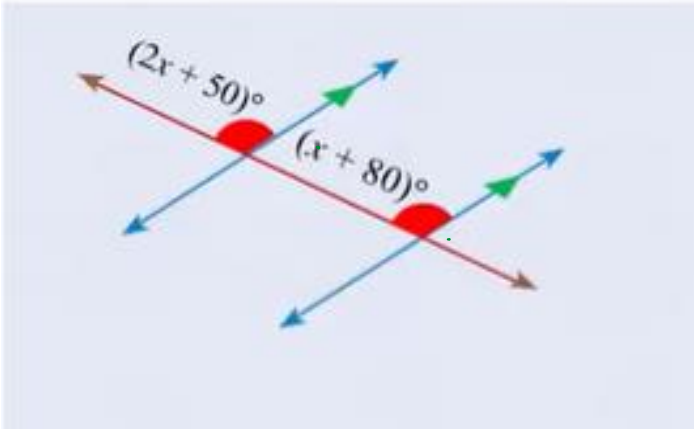
2) Alternate Internal Angles
(There are 2 pairs)

4) Allied Angles (There are 2 pairs)

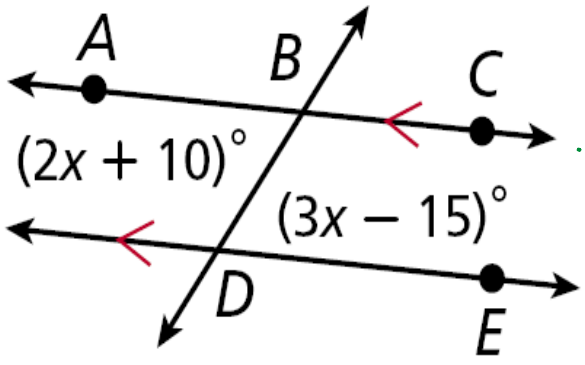
Exercise 3: Find the value of x



Exercise 4: Find the value of x.

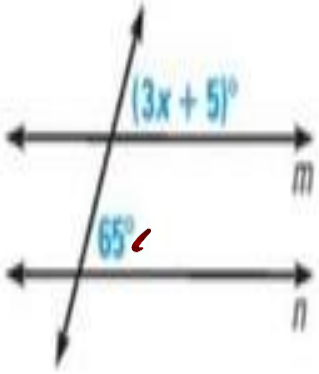


Exercise 5: *Find* $m\angle ABD$.



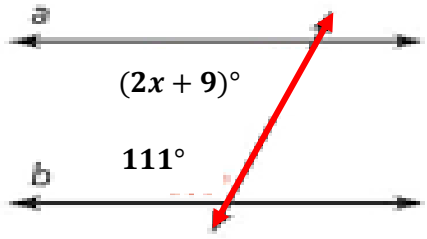
Exercise 6:

Find the value of x that makes $m \parallel n$.



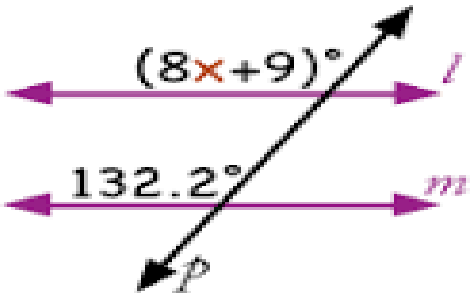
Exercise 7:

- What is the value of x for which a || b?



Exercise 8:

Find 'x' so l and m are Parallel



Teacher : wisam al mashni