

What you will learn about:
Parallel lines and Angles

Supplementary Angles

2 angles whose measures add up to 180°

Complementary Angles

2 angles whose measures add up to 90°

Vertical Angles - Non-Adjacent angles formed by intersecting lines.

Linear Pairs - 2 adjacent angles whose measures add up to 180°

Parallel Lines - Lines in the same plane that do not intersect.

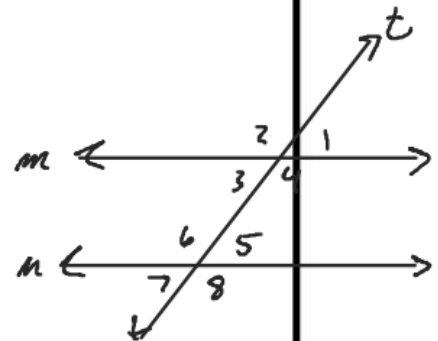
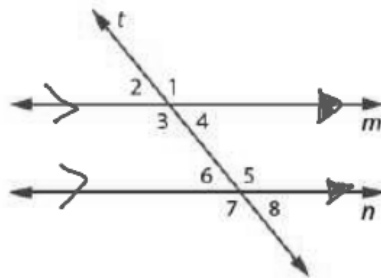
Transversal - Line that intersects 2 or more lines at different points

Congruent - same measure

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Adjacent - Next to

In the diagram below $m \parallel n$ with transversal t .



- In the preceding diagram, the angles at each point of intersection are numbered so that they can be easily identified.

a. What pairs of angles, if any appear to be equal in measure? (\cong)

$\angle 2 + \angle 4$ $\angle 2 + \angle 8$ $\angle 5 + \angle 7$ $\angle 3 + \angle 7$
 $\angle 1 + \angle 7$ $\angle 6 + \angle 8$ $\angle 1 + \angle 5$ $\angle 4 + \angle 8$
 $\angle 1 + \angle 3$ $\angle 4 + \angle 6$ $\angle 2 + \angle 4$ $\angle 3 + \angle 5$

b. What angle pairs appear to be supplementary? (Supplementary angles need not be linear pairs.)

$\angle 2 + \angle 7$ $\angle 1 + \angle 8$ $\angle 2 + \angle 5$ $\angle 4 + \angle 5$
 $\angle 7 + \angle 4$ $\angle 8 + \angle 3$ $\angle 1 + \angle 6$ $\angle 3 + \angle 6$

c. Draw another pair of parallel lines and a transversal with a different slope from the one above. Number the angles as in the figure above.

i. Do the same pairs of numbered angles appear to be equal in measure?

ii. Do the same pairs of numbered angles appear to be supplementary?

Angles that are in the same relative position with respect to each parallel line and the transversal are called **Corresponding Angles**. In the diagram on the previous page angles 1 and 5 are corresponding angles.

2. Examine the diagram you drew for Part C of Problems 1.

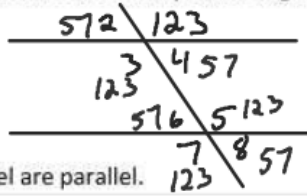
a. Name 3 other pairs of corresponding angles besides angles 1 and 5.

$\angle 2 + \angle 6$ $\angle 3 + \angle 7$

$\angle 8 + \angle 4$

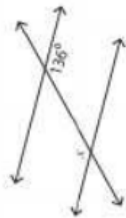
b. Suppose $m\angle 1 = 123^\circ$ (read the measure of angle 1 is 123 degrees.) Find the measure of as many other angles as you can in your diagram.

$m\angle 5 =$



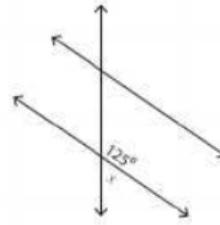
Assuming all lines that look parallel are parallel. Find the value of x .

1)



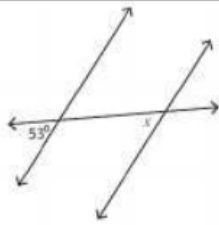
$x =$ _____

2)



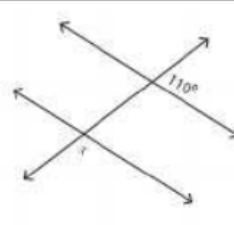
$x =$ _____

3)



$x =$ _____

4)



$x =$ _____