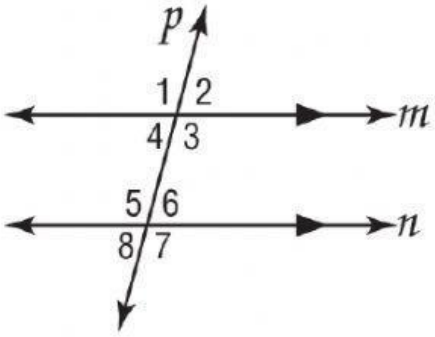
Worksheet – *Section 3-2 Angles and Parallel Lines*

Objectives:

- Understand the **parallel lines cut by a transversal theorem** and **it's converse**
- Find **angle measures** using the Theorem
- Use **algebra to find unknown variable** and angle measures involve **parallel lines and transversals**
- Use **Auxiliary lines** to find unknown angle measures

Parallel Lines and Angle Pairs

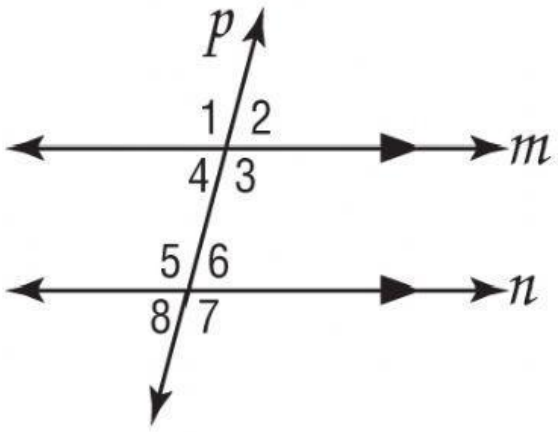
When two parallel lines are cut by a transversal, the following pairs of angles are congruent.



- corresponding angles
- alternate interior angles
- alternate exterior angles

Also, consecutive interior angles are supplementary.

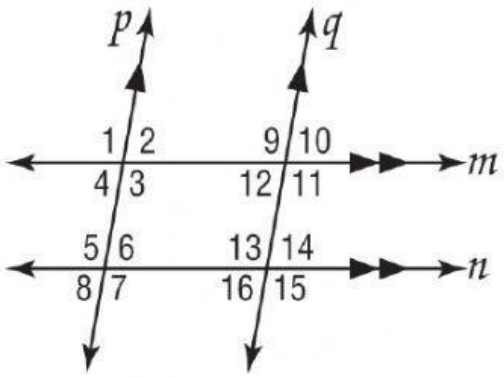
Example:
In the figure, $m\angle 2 = 75$. Find the measures of the remaining angles.



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Example:

In the figure, $m\angle 3 = 102$. Find the measure of each angle. Tell which postulate(s) or theorem(s) you used.



a. $\angle 5$

b. $\angle 6$

c. $\angle 11$

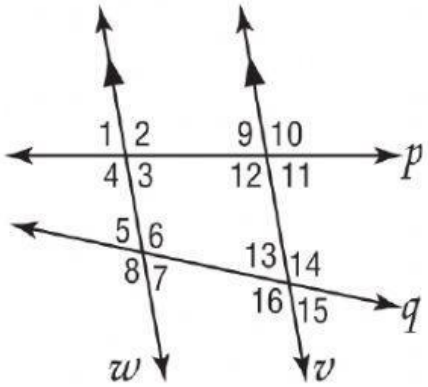
d. $\angle 7$

e. $\angle 15$

f. $\angle 14$

Practice

In the figure, $m\angle 9 = 80$ and $m\angle 5 = 68$. Find the measure of each angle. Tell which postulate(s) or theorem(s) you used.



a. $\angle 12$

b. $\angle 1$

c. $\angle 4$

d. $\angle 3$

e. $\angle 7$

f. $\angle 16$

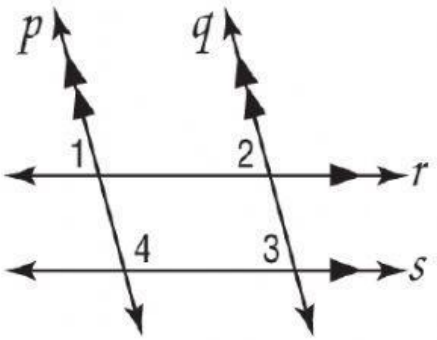
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Algebra and Angle Measures

Algebra can be used to find unknown values in angles formed by a transversal and parallel lines.

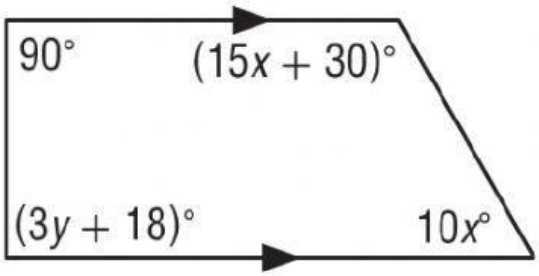
Example:

If $m\angle 1 = 3x + 15$, $m\angle 2 = 4x - 5$, and $m\angle 3 = 5y$, find the value of x and y.



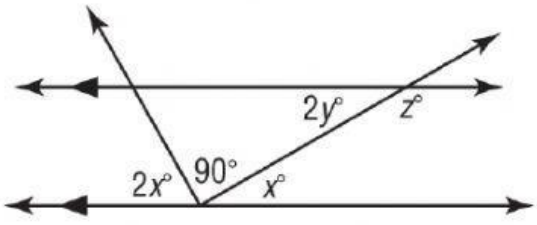
Example:

Find the value of the variable(s) in each figure. Explain your reasoning.



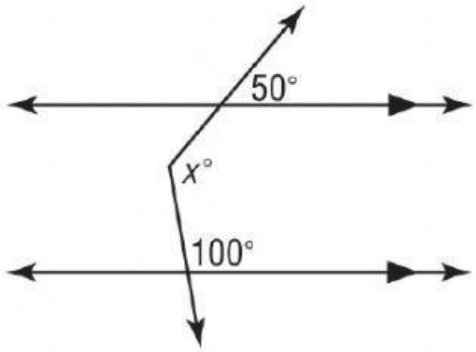
Example:

Find the value of the variable(s) in each figure. Explain your reasoning.



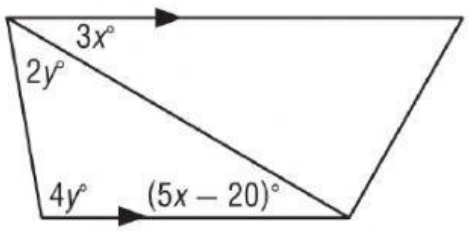
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Example(Using a 3rd parallel Line – Auxilury Line)



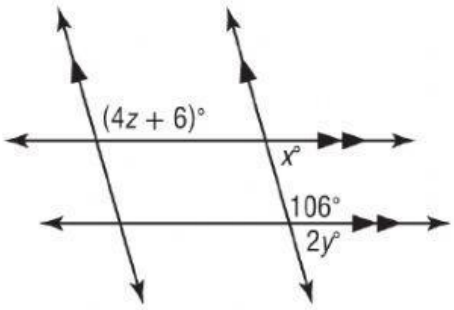
Practice:

Find the value of the variable(s) in each figure. Explain your reasoning.



Practice:

Find the value of the variable(s) in each figure. Explain your reasoning.



LIVEWORKSHEETS