

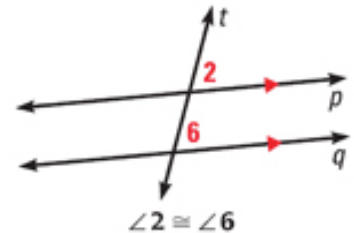
# Honors Geometry

## Notes Section 3.2

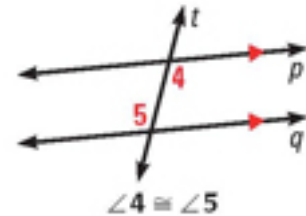
### Use Parallel Lines and Transversals

#### POSTULATES / THEOREMS / COROLLARIES

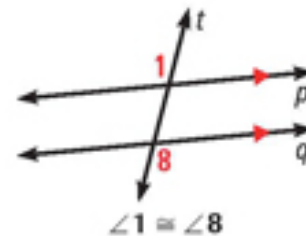
**Postulate 15:** if the lines are **PARALLEL**, then the **Corresponding Angles**



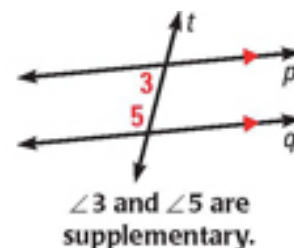
**Theorem 3-1:** if the lines are **PARALLEL**, then the **Alternate Interior Angles**



**Theorem 3-2:** if the lines are **PARALLEL**, then the **Alternate Exterior Angles**



**Theorem 3-3:** if the lines are **PARALLEL**, then the **Consecutive Interior Angles**

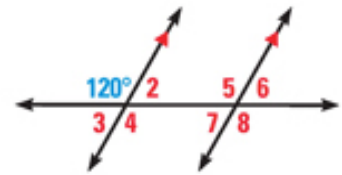


**EXAMPLE 1** Which 3 angles have a measure of  $120^\circ$ ? Explain.

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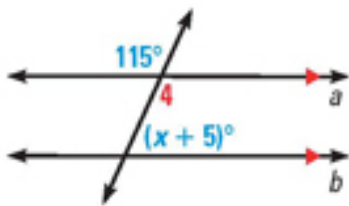
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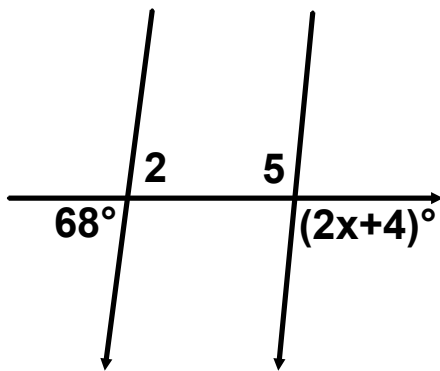


**EXAMPLE 2** Find the value of  $x$ .

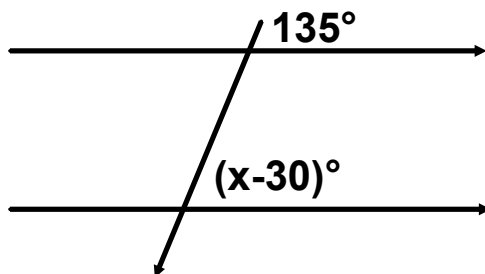
a)

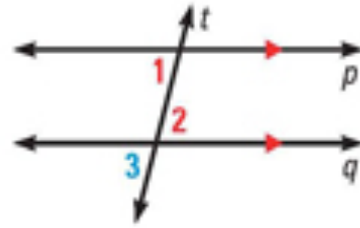


b)

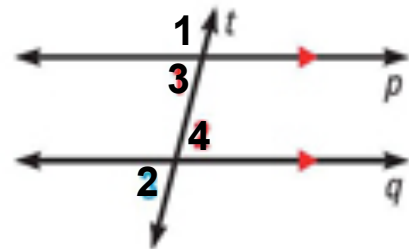


c)



**EXAMPLE 3** Complete the following proofs.a) **Given:**  $p \parallel q$ **Prove:**  $\angle 1 \cong \angle 2$ 

- |                              |          |
|------------------------------|----------|
| 1. $p \parallel q$           | 1. _____ |
| 2. $\angle 1 \cong \angle 3$ | 2. _____ |
| 3. $\angle 3 \cong \angle 2$ | 3. _____ |
| 4. $\angle 1 \cong \angle 2$ | 4. _____ |

b) **Given:**  $p \parallel q$ **Prove:**  $\angle 1$  and  $\angle 2$  are supplementary

- |  |          |
|--|----------|
| 1. $p \parallel q$                             | 1. _____ |
| 2. $m\angle 1 + m\angle 3 = 180^\circ$         | 2. _____ |
| 3. $\angle 2 \cong \angle 3$                   | 3. _____ |
| 4. $m\angle 2 = m\angle 3$                     | 4. _____ |
| 5. $m\angle 1 + m\angle 2 = 180^\circ$         | 5. _____ |
| 6. $\angle 1$ and $\angle 2$ are supplementary | 6. _____ |