Name _____ Date _____

Proving Lines Parallel

1. Complete each conditional statement below by filling in the blank.

   a) If the lines are parallel, then the alternate interior angles are _____.

   b) If the lines are parallel, then the alternate exterior angles are _____.

   c) If the lines are parallel, then the corresponding angles are _____.

   d) If the lines are parallel, then the consecutive interior angles are _____.

2. Write the converse statement for each conditional statement above.
   The converse is created by switching the IF and THEN parts of the conditional statement.

   a) If the alternate interior angles are _____, then the lines are parallel.

   b)

   c)

   d)

3. Use the figure to fill in the angles that would satisfy the statement.

   a) Using the Alternate Interior Angles Converse

   If_____ , then $r \parallel s$.

   b) Using the Alternate Exterior Angles Converse

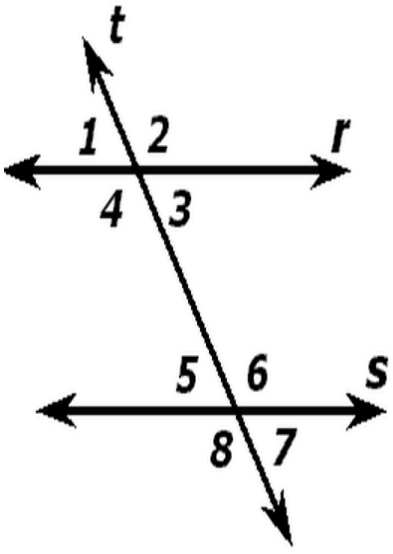
   If_____, then $r \parallel s$.

   c) Using the Consecutive Interior Angles Converse

   If_____, then $r \parallel s$.

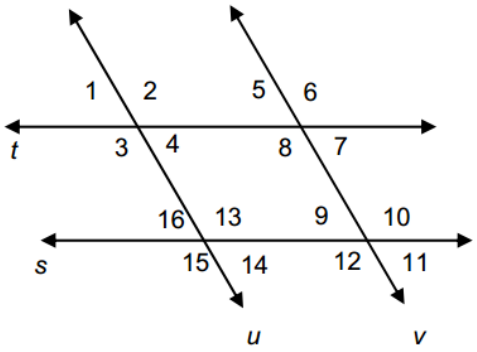
   d) Using the Corresponding Angles Converse

   If_____, then $r \parallel s$.



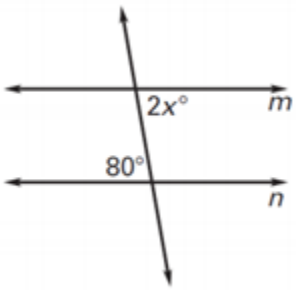
Using the figure to the right, determine which lines are parallel. Choose the reason from the postulates and theorems given. If no parallel lines, then **only** fill in the reason.

A. If ∥ then same side angles are supplementary.
B. If ∥ then alternate interior angles are congruent.
C. If ∥ then corresponding angles are congruent.
D. If same side interior angles are supplementary then ∥.
E. If corresponding angles are congruent then ∥.
F. If alternate interior angles are congruent then ∥.
G. No lines ∥.



1. $\angle 3 \cong \angle 13$ _____ ∥ _____ because _____
2. $\angle 3 \cong \angle 7$ _____ ∥ _____ because _____
3. $\angle 13$ is supplementary to $\angle 16$ _____ ∥ _____ because _____
4. $\angle 4$ is supplementary to $\angle 8$ _____ ∥ _____ because _____
5. $\angle 9 \cong \angle 16$ _____ ∥ _____ because _____
6. $\angle 8 \cong \angle 13$ _____ ∥ _____ because _____
7. $\angle 6 \cong \angle 10$ _____ ∥ _____ because _____
8. $\angle 4 \cong \angle 16$ _____ ∥ _____ because _____
9. $\angle 4 \cong \angle 5$ _____ ∥ _____ because _____
10. $\angle 1 \cong \angle 16$ _____ ∥ _____ because _____

Find the value of x that makes $m \parallel n$. State the theorem you used.

11.


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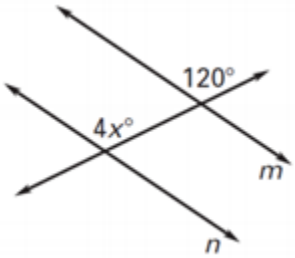

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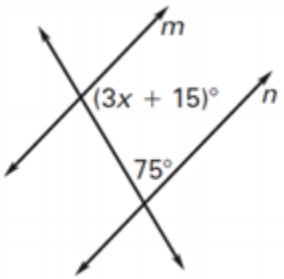

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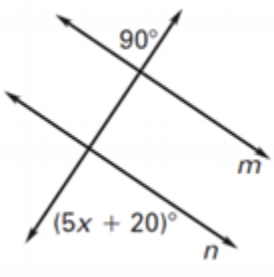

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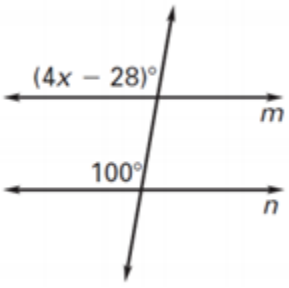

16.