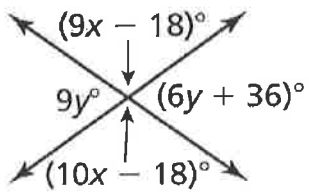
Start Thinking

You are designing a new shopping mall. The mall will be surrounded by four walkways. The north and south walkways are parallel, as are the east and west walkways. The southwest and northeast corners are 60° angles.

Sketch the mall and its walkways. What are the angles of the other two corners? The mall's walkways are running parallel with streets on all four sides. Add these streets to your sketch. What angles do the centers of the intersecting streets create? Explain your reasoning.

Find the values of *x* and *y*.

1.



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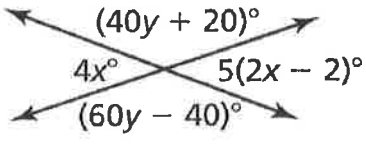


Use the property to copy and complete the statement.

1. Symmetric Property of Equality:
   If $m\angle 1 = m\angle 2$, then _____.
2. Addition Property of Equality:
   If $EF = GH$, then $EF + HJ =$ _____.
3. Multiplication Property of Equality:
   If $EF = GH$, then $4 \cdot EF =$ _____.

Name_____ Date_____

Complete each exercise.

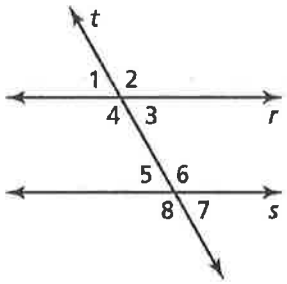
Using the diagram, find the value of *x* that makes *r* parallel to *s*.

A. $m\angle 1 = 30°$ and $m\angle 7 = (2x + 10)°$

B. $m\angle 4 = 135°$ and $m\angle 5 = (4x - 3)°$

C. $m\angle 2 = 124°$ and $m\angle 6 = (4x + 4)°$

D. $m\angle 3 = 24°$ and $m\angle 5 = (2x + 2)°$



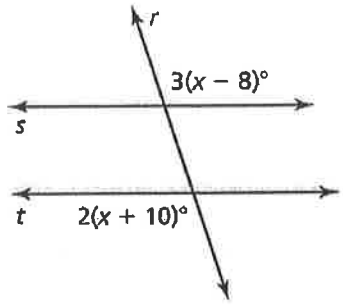
Use the diagram to complete the proof. Use the chart to identify the reasons.

1. Consecutive Interior Angles Converse
2. Alternate Interior Angles Converse
5. Alternate Exterior Angles Converse
6. Vertical Angles Congruence Theorem
7. Corresponding Angles Converse

Name _____ Date_____

In Exercises 1 and 2, find the value of x that makes $s \parallel t$. Explain your reasoning.

1.



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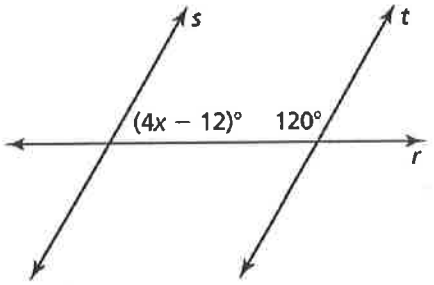
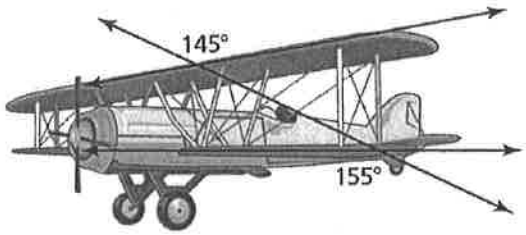


3. The angles formed between the braces and the wings of a biplane are shown in the figure. Are the top and bottom wings of a biplane parallel? Explain your reasoning.



Name _____ Date _____

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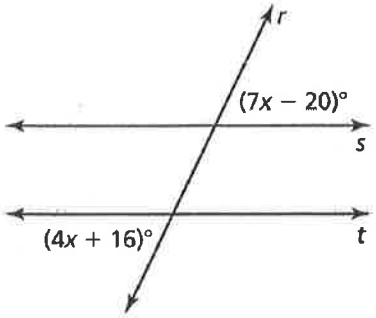
1.



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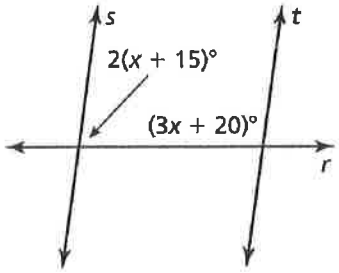
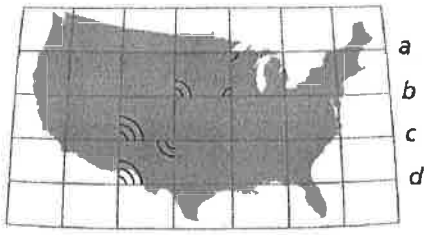


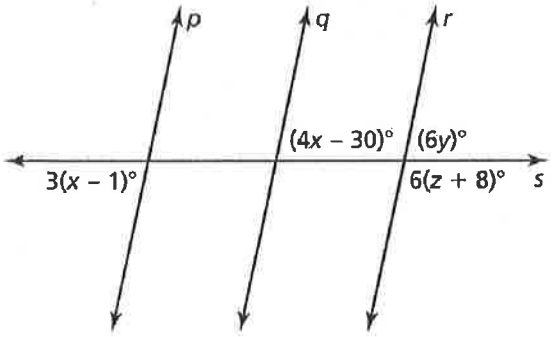
3. The map of the United States shows the lines of latitude and longitude. The lines of latitude run horizontally and the lines of longitude run vertically.



a. Are the lines of latitude parallel? Explain.

b. Are the lines of longitude parallel? Explain.

4. Use the diagram to answer the following.



Name _____ Date_____

1. In the diagram to the right, $e \parallel d$, $g \parallel f$, and $a \parallel b \parallel c$. Find the following.

a. $m\angle 1$

b. $m\angle 2$

c. $m\angle 3$

d. $m\angle 4$

e. $m\angle 5$