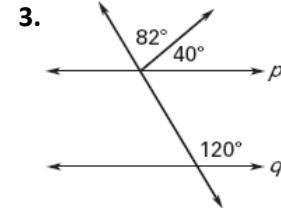
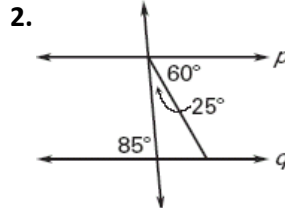
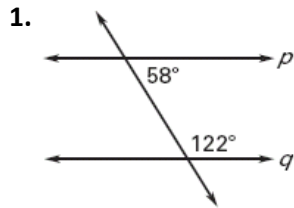
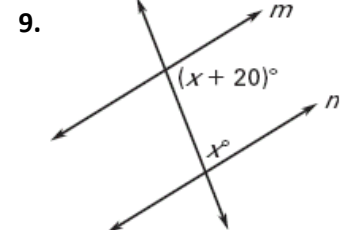
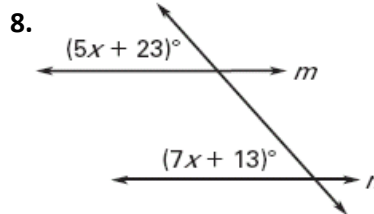
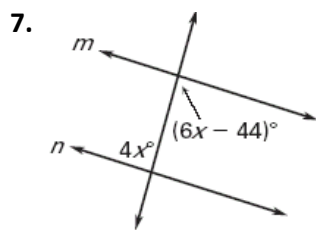
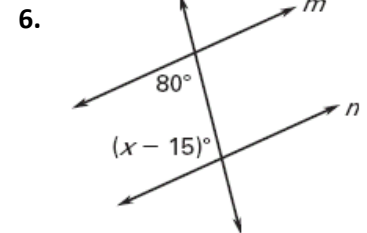
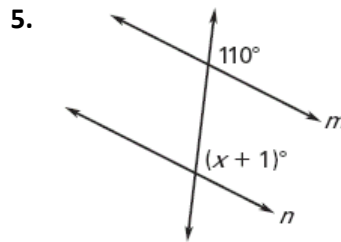
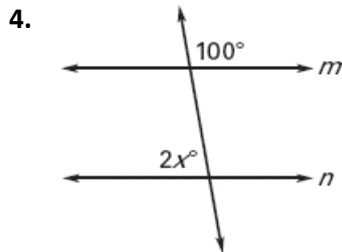


Is it possible to prove that lines p and q are parallel? If so, state the postulate or theorem you would use.



Find the value of x that makes $m \parallel n$.



In Exercises 10–12, choose the word that best completes the statement.

10. If two lines are cut by a transversal so the alternate interior angles are (*congruent, supplementary, complementary*), then the lines are parallel.
11. If two lines are cut by a transversal so the consecutive interior angles are (*congruent, supplementary, complementary*), then the lines are parallel.
12. If two lines are cut by a transversal so the corresponding angles are (*congruent, supplementary, complementary*), then the lines are parallel.

In Exercises 13–17, use the diagram and the given information to determine if $m \parallel n$, $p \parallel q$, or neither.

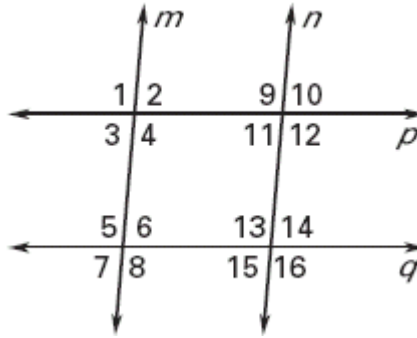
13. $\angle 3 \cong \angle 10$

14. $\angle 1 \cong \angle 13$

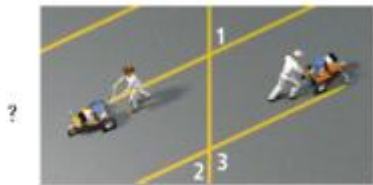
15. $\angle 4 \cong \angle 11$

16. $\angle 12 \cong \angle 13$

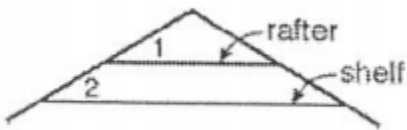
17. $\angle 3 \cong \angle 14$



18. Two workers paint parallel lines for angled parking spaces. One worker paints a line so that $m\angle 1 = 65^\circ$. The other worker paints a line so that $m\angle 2 = 65^\circ$. Are the lines parallel? Explain.



19. A bedroom has sloping ceilings as shown. Mark is hanging a shelf below a rafter. If $m\angle 1 = (8x - 1)^\circ$ and $m\angle 2 = (6x + 7)^\circ$, find the value of x that makes the rafter and shelf parallel. Justify your reasoning.



Answer Key

1. yes; Consecutive Interior Angles Converse
2. yes; Alternate Interior Angles Converse
3. no
4. 40
5. 109
6. 115
7. 22
8. 5
9. 80
10. congruent
11. supplementary

12. congruent
13. $m \parallel n$
14. neither
15. neither
16. $p \parallel q$
17. neither
18. yes, by the alternate exterior angles converse the lines will be parallel.
19. If $x = 4$, then $m\angle 1 = m\angle 2$. The rafter and shelf will be parallel by Corresponding Angles Converse.