Name_____ Date_____ Period: _____

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



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*.



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



19. A bedroom has sloping ceilings as shown. Mark is hanging a shelf below a rafter. If $m \ge 1 = (8x - 1)^{\circ}$ and $m \ge 2 = (6x + 7)^{\circ}$, 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 n*
- 14. neither
- 15. neither
- **16.** p || q
- **17.** neither
- **18.** yes, by the alternate exterior angles converse the lines will be parallel.
- **19.** If x=4, then $m \ge 1 = m \ge 2$. The rafter and shelf will be parallel by Corresponding Angles Converse.