Challenge Practice

LESSON 3.4

For use with the lesson "Find Slope and Rate of Change"

In Exercises 1–4, find the slope of the line passing through the pair of points. Assume *a* and *b* are nonzero real numbers.

1. (a, b) and $(1, 4)$

2. (a, b) and $(2a, 5b)$

3. (a, b) and (b, a)

4. $(3a, b)$ and $(-3b, -a)$

In Exercises 5–8, find the value of *x* so that the line through the first pair of points is *parallel* to the line through the second pair of points. Two different lines are *parallel* if they both have the same slope or both have an undefined slope.

5. $(3, -2)$ and $(1, 5)$; $(-3, x)$ and $(1, 4)$

6. $(1, 6)$ and $(x, 2)$; $(2, 7)$ and $(-3, 2)$

7. $(6, 4)$ and $(1, 4)$; $(-3, x)$ and $(1, 7)$

8. $(2, -2)$ and $(x, 1)$; $(-6, 0)$ and $(-6, 9)$

In Exercises 9–12, find the value of *x* so that the line through the first pair of points is *perpendicular* to the line through the second pair of points. Two lines are *perpendicular* if the product of their slopes is -1 or if one line has zero slope and the other line has undefined slope.

9. $(-4, -2)$ and $(3, 2)$; $(0, x)$ and $(1, 3)$

10. $(2, 2)$ and $(x, 5)$; $(-3, 8)$ and $(2, -3)$

11. $(2, -3)$ and $(1, -3)$; $(-3, 2)$ and $(x, 7)$

12. $(2, 3)$ and $(x, -9)$; $(-6, 0)$ and $(6, 0)$