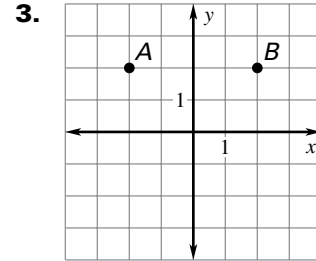
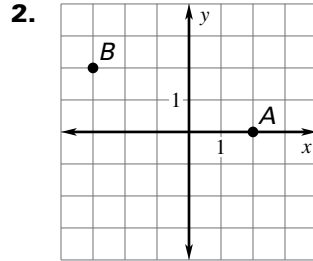
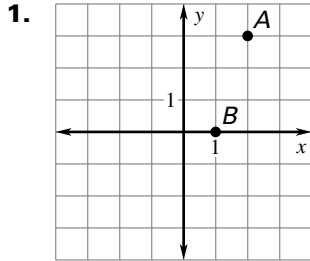
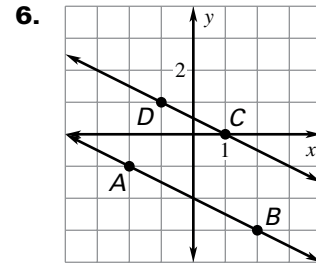
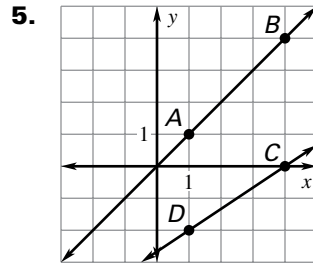
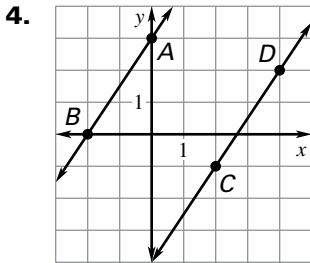


LESSON 3.4 Practice B
For use with pages 177–185

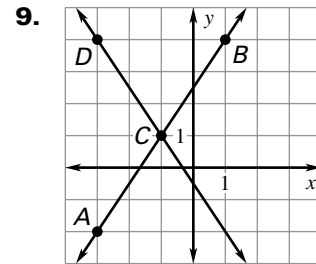
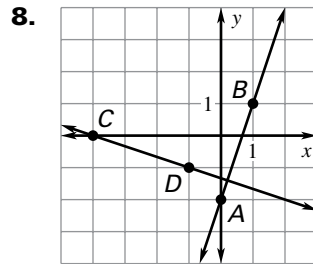
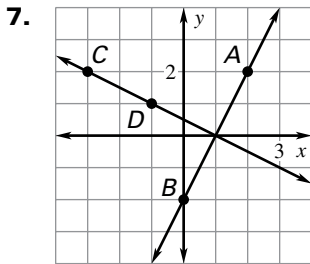
Find the slope of the line that passes through the points.



Find the slope of each line. Are the lines parallel?



Find the slope of each line. Are the lines perpendicular?



Tell whether the lines through the given points are *parallel*, *perpendicular*, or *neither*.

10. Line 1: $(-1, 2), (2, 3)$
Line 2: $(0, 0), (3, 1)$

11. Line 1: $(0, 1), (1, 3)$
Line 2: $(4, -1), (5, 2)$

12. Line 1: $(-5, 0), (-3, -2)$
Line 2: $(-2, 2), (0, 4)$

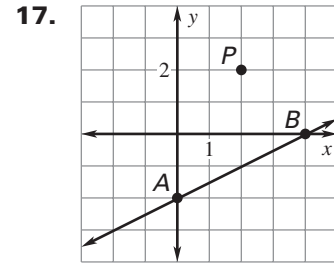
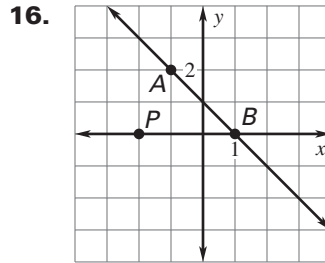
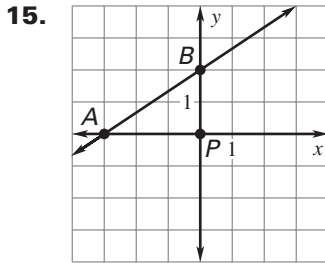
Quadrilateral *ABCD* has the given vertices. Find the slopes of the sides and the lengths of the sides. What can you prove about quadrilateral *ABCD*?

13. $A(-5, 1), B(-2, 0), C(-3, -4), D(-6, -3)$ 14. $A(-6, 0), B(-4, 2), C(-2, 0), D(-4, -2)$

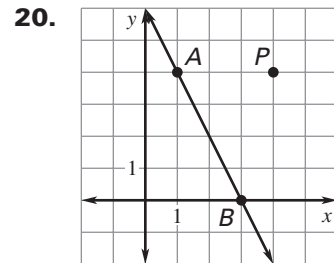
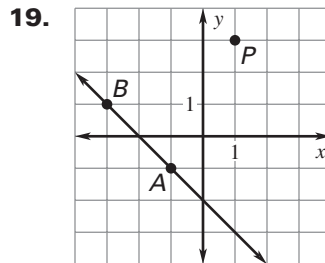
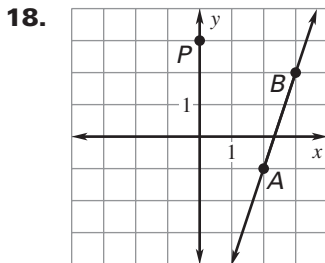
LESSON 3.4

Practice B *continued*
For use with pages 177–185

Graph the line parallel to line AB that passes through point P .



Graph the line perpendicular to line AB that passes through point P .



In Exercises 21 and 22, consider the three given lines.

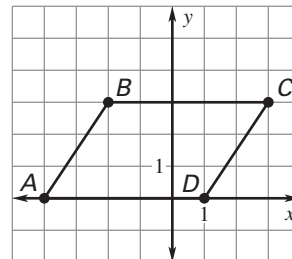
Line a : through the points $(2, 0)$ and $(0, 1)$

Line b : through the points $(2, 0)$ and $(0, 5)$

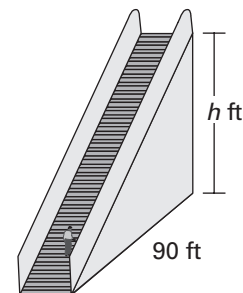
Line c : through the points $(2, 0)$ and $(0, 3)$

- 21. Which line is most steep?
- 22. Which line is least steep?

23. **Parallelograms** A parallelogram is a four-sided figure whose opposite sides are parallel. *Explain* why the figure shown is a parallelogram.



24. **Escalators** On an escalator, you move 2 feet vertically for every 3 feet you move horizontally. When you reach the top of the escalator, you have moved a horizontal distance of 90 feet. Find the height h of the escalator.

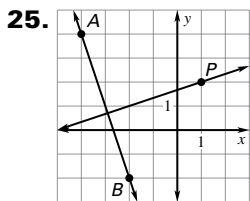
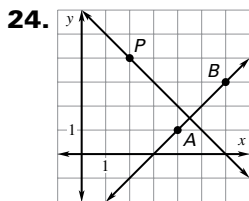
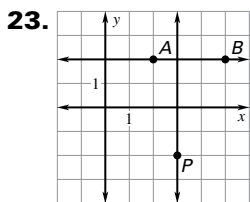
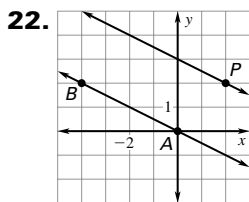
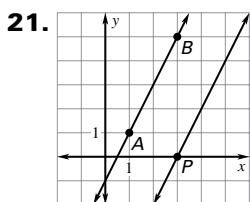
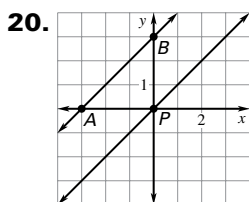


Lesson 3.4, continued

17. slope of $\overline{AB} = 2$, slope of $\overline{BC} = -\frac{2}{3}$, slope of $\overline{CD} = 2$, slope of $\overline{DA} = -\frac{2}{3}$; $AB = CD = \sqrt{5}$; $BC = DA = \sqrt{13}$; $ABCD$ has two pairs of parallel congruent sides, but it has no right angles. So, $ABCD$ is a parallelogram, but not a rectangle.

18. slope of $\overline{AB} = -\frac{1}{3}$, slope of $\overline{BC} = 4$, slope of $\overline{CD} = -\frac{1}{3}$, slope of $\overline{DA} = 4$; $AB = CD = \sqrt{10}$; $BC = DA = \sqrt{17}$; $ABCD$ has two pairs of parallel congruent sides, but it has no right angles. So, $ABCD$ is a parallelogram, but not a rectangle.

19. slope of $\overline{AB} = 1$, slope of $\overline{BC} = -1$, slope of $\overline{CD} = 1$, slope of $\overline{DA} = -1$; $AB = BC = CD = DA = 2\sqrt{2}$; $ABCD$ is a square.



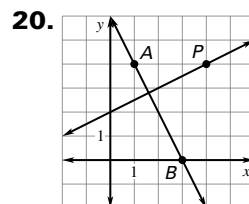
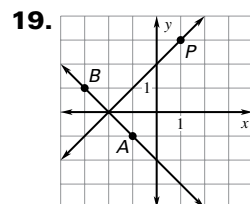
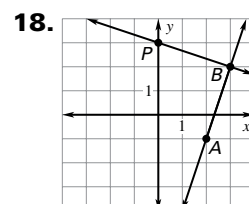
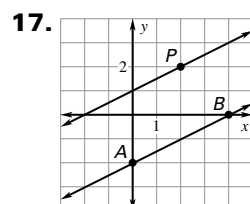
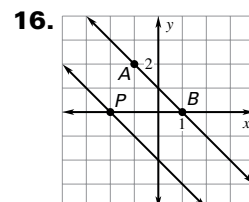
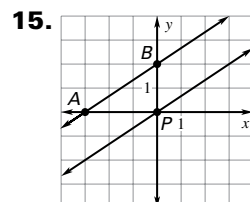
26. line c **27.** line a **28.** a. $\frac{1}{2}$ b. more steep

Practice Level B

1. 3 2. $-\frac{2}{5}$ 3. 0 4. $m_{\overline{AB}} = \frac{3}{2}$, $m_{\overline{CD}} = \frac{3}{2}$; yes
 5. $m_{\overline{AB}} = 1$, $m_{\overline{CD}} = \frac{2}{3}$; no
 6. $m_{\overline{AB}} = -\frac{1}{2}$, $m_{\overline{CD}} = -\frac{1}{2}$; yes
 7. $m_{\overline{AB}} = 2$, $m_{\overline{CD}} = -\frac{1}{2}$; yes
 8. $m_{\overline{AB}} = 3$, $m_{\overline{CD}} = -\frac{1}{3}$; yes
 9. $m_{\overline{AB}} = \frac{3}{2}$, $m_{\overline{CD}} = -\frac{3}{2}$; no
 10. parallel 11. neither 12. perpendicular

13. slope of $\overline{AB} = -\frac{1}{3}$, slope of $\overline{BC} = 4$, slope of $\overline{CD} = -\frac{1}{3}$, slope of $\overline{DA} = 4$; $AB = CD = \sqrt{10}$; $BC = DA = \sqrt{17}$; $ABCD$ has two pairs of parallel congruent sides, but it has no right angles. So, $ABCD$ is a parallelogram, but not a rectangle.

14. slope of $\overline{AB} = 1$, slope of $\overline{BC} = -1$, slope of $\overline{CD} = 1$, slope of $\overline{DA} = -1$; $AB = BC = CD = DA = 2\sqrt{2}$; $ABCD$ is a square.



21. line b **22.** line a

23. $m_{\overline{AB}} = \frac{3}{2}$, $m_{\overline{CD}} = \frac{3}{2}$, $m_{\overline{BC}} = 0$, $m_{\overline{AD}} = 0$;

The opposite sides of the figure are parallel because they have the same slope. **24.** 60 feet

Practice Level C

1. $\frac{1}{2}$ 2. $-\frac{4}{5}$ 3. $-\frac{9}{4}$ 4. $m_{\overline{AB}} = \frac{1}{4}$, $m_{\overline{CD}} = \frac{1}{4}$; yes
 5. $m_{\overline{AB}} = -\frac{2}{5}$, $m_{\overline{CD}} = -\frac{1}{2}$; no
 6. $m_{\overline{AB}} = -4$, $m_{\overline{CD}} = -4$; yes
 7. $m_{\overline{AB}} = -\frac{3}{4}$, $m_{\overline{CD}} = 1$; no
 8. $m_{\overline{AB}} = 2$, $m_{\overline{CD}} = -\frac{1}{2}$; yes
 9. $m_{\overline{AB}} = \frac{2}{7}$, $m_{\overline{CD}} = -\frac{7}{2}$; yes 10. neither
 11. parallel 12. perpendicular 13. parallel
 14. perpendicular 15. parallel