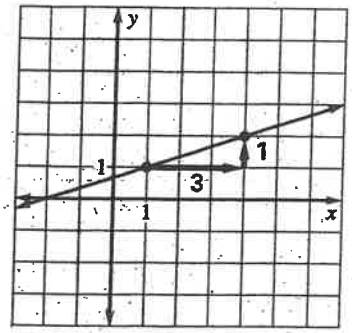
LESSON 3.6

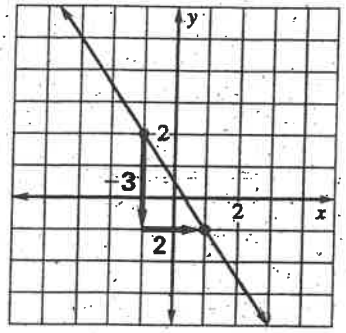
NAME _____ DATE _____

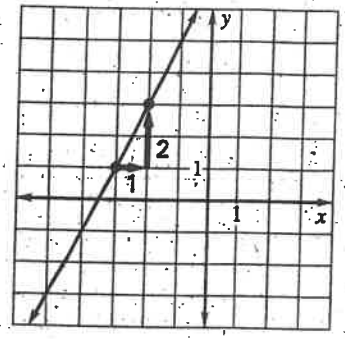
Practice A

For use with pages 165–171

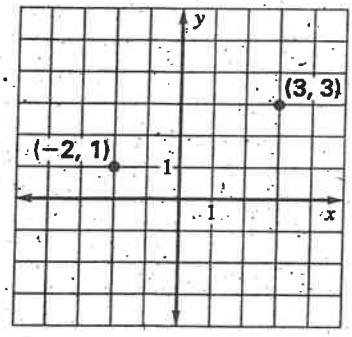
Calculate the slope of the line shown.

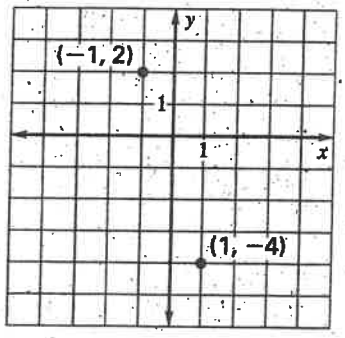
1. 

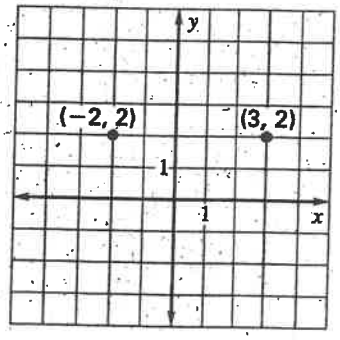
2. 

3. 

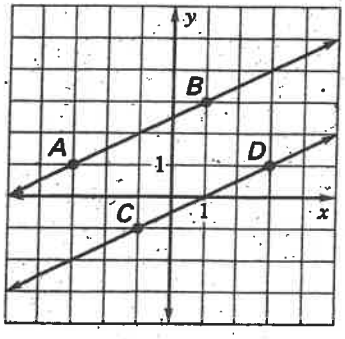
Calculate the slope of the line that passes through the labeled points on the graph.

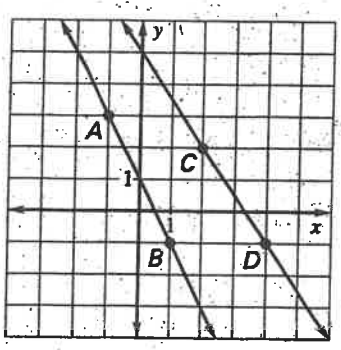
4. 

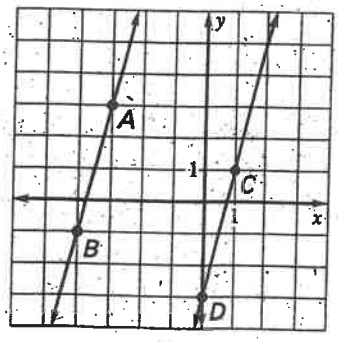
5. 

6. 

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

7. 

8. 

9. 

Write an equation of the line.

10. slope = 4
    y-intercept = 5

11. slope = -2
    y-intercept = 3

12. slope = $\frac{1}{2}$
    y-intercept = -4

13. parallel to $y = 2x - 5$
    y-intercept = $\frac{1}{3}$

14. parallel to $y = -3x + 7$
    y-intercept = 0

15. parallel to $y = x - 1$
    y-intercept = $\frac{3}{4}$

Lesson 3.6

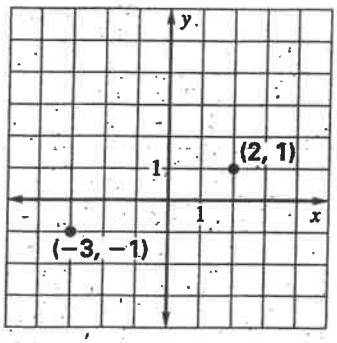
LESSON 3.6

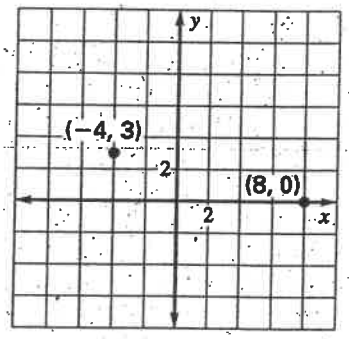
NAME _____ DATE _____

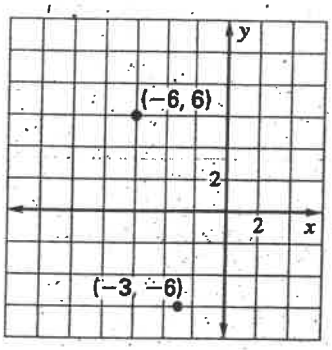
Practice C

For use with pages 165–171

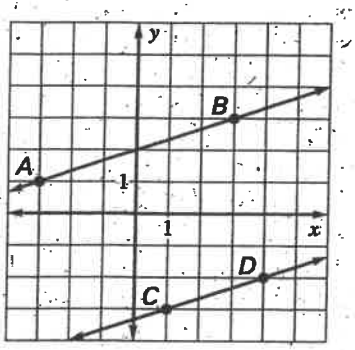
Calculate the slope of the line that passes through the labeled points on the graph.

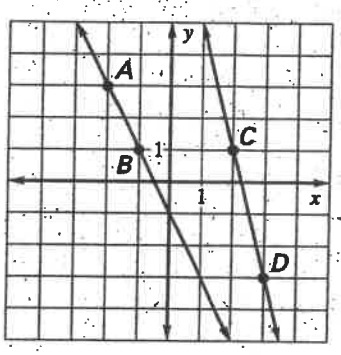
1. 

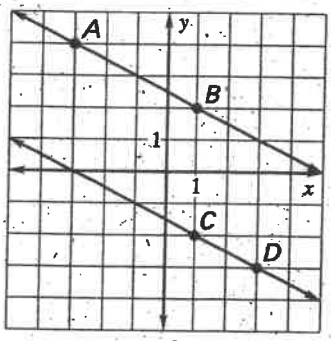
2. 

3. 

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

4. 

5. 

6. 

Write an equation of the line.

7. slope $= \frac{2}{5}$
   y-intercept $= -2$

8. parallel to $y = 4x - 4$
   y-intercept $= -\frac{3}{5}$

9. parallel to $y = 8$
   y-intercept $= 0$

Write an equation of the line that passes through the given point P and has the given slope.

10. $P(0, 2)$, slope $= 5$

11. $P(-2, 4)$, slope $= \frac{2}{3}$

12. $P(-3, -3)$, slope $= -3$

Lesson 3.6

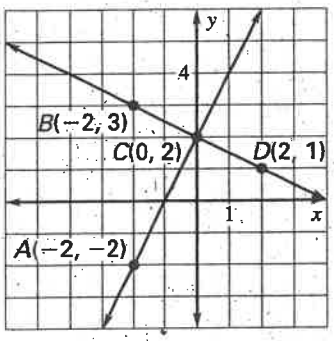
LESSON 3.7

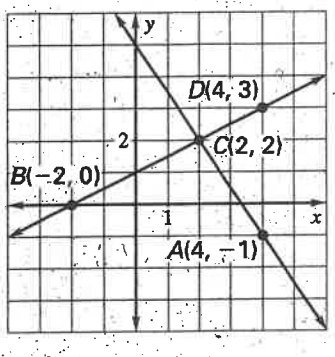
NAME _____ DATE _____

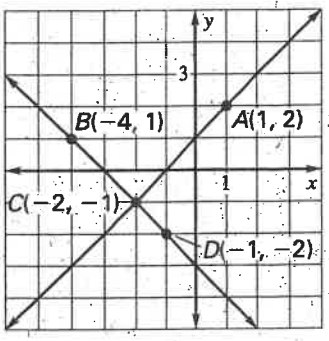
Practice A

For use with pages 172–178

Find the slope of $\overleftrightarrow{AC}$ and $\overleftrightarrow{BD}$. Decide whether $\overleftrightarrow{AC}$ is perpendicular to $\overleftrightarrow{BD}$.

1. 

2. 

3. 

The slopes of two lines are given. Are the lines perpendicular?

4. $m_1 = 2, m_2 = \frac{1}{2}$
5. $m_1 = -\frac{1}{2}, m_2 = 2$
6. $m_1 = 4, m_2 = -\frac{1}{4}$
7. $m_1 = -\frac{2}{3}, m_2 = \frac{3}{2}$
8. $m_1 = \frac{3}{4}, m_2 = \frac{4}{3}$
9. $m_1 = -1, m_2 = 1$

Lines *a* and *b* are perpendicular. The slope of line *a* is given. What is the slope of line *b*?

10. 3
11. $\frac{3}{4}$
12. -2
13. $-\frac{5}{2}$
14. $-\frac{1}{2}$
15. $\frac{2}{5}$
16. 1
17. $-\frac{6}{7}$

Decide whether lines p_1 and p_2 are perpendicular.

18. line p_1: $y = 3x + 5$
    line p_2: $y = \frac{1}{3}x + 5$
19. line p_1: $3x + 5y = 12$
    line p_2: $5x + 3y = 18$
20. line p_1: $4x - 2y = 6$
    line p_2: $2x + 4y = 6$
21. line p_1: $x + 8y = -4$
    line p_2: $4x - 2y = 10$

Line *j* is perpendicular to the line with the given equation and line *j* passes through *P*. Write an equation of line *j*.

22. $y = \frac{1}{3}x + 4, P(0, 5)$
23. $y = 3x + 4, P(0, -2)$
24. $y = -\frac{4}{5}x + 4, P(1, 1)$
25. $y = \frac{2}{3}x + 4, P(2, 0)$

Write an equation parallel to the given line. Write an equation perpendicular to the given line.

26. $y = 2x - 4$
27. $y = -x + 5$
28. $y = \frac{1}{3}x - 2$

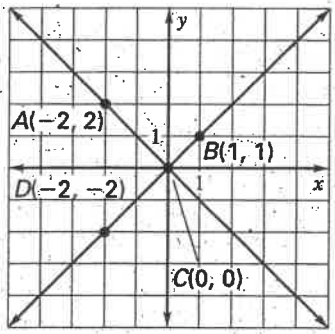
LESSON 3.7

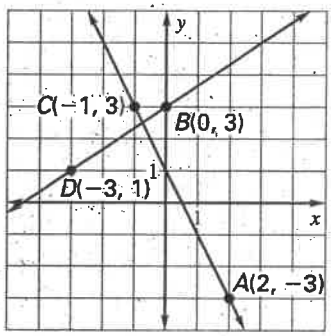
NAME _____ DATE _____

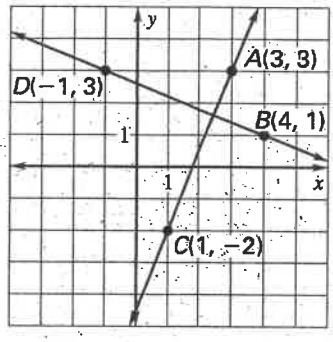
Practice C

For use with pages 172–178

Find the slope of $\overleftrightarrow{AC}$ and $\overleftrightarrow{BD}$. Decide whether $\overleftrightarrow{AC}$ is perpendicular to $\overleftrightarrow{BD}$.

1. 

2. 

3. 

Decide whether lines p_1 and p_2 are perpendicular.

4. line p_1: $y = 3x + 5$
   line p_2: $y = \frac{1}{3}x + 5$

5. line p_1: $7x + 2y = 5$
   line p_2: $2x - 7y = 5$

6. line p_1: $9x = 4 + 7y$
   line p_2: $7x + 9y = -5$

7. line p_1: $x + 3y = -4$
   line p_2: $6x - 2y = 8$

Determine if the intersection of $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ forms a right angle. Explain your reasoning.

8. $A(-7, 0), B(-2, -1), C(-3, 6), D(-4, -3)$

9. $A(5, 8), B(1, 6), C(1, -3), D(-3, 5)$

10. $A(-4, 4), B(4, 3), C(-2, -4), D(-1, 4)$

11. $A(1, 2), B(-2, -6), C(-1, 5), D(5, 2)$

Line j is perpendicular to the line with the given equation and line j passes through P. Write an equation of line j.

12. $y = \frac{1}{6}x + 5, P(-3, 1)$

13. $y = 0.1x + 7, P(1, 2)$

14. $y = -\frac{5}{2}x + 1, P(-5, 6)$

15. $y = \frac{2}{3}x + 4, P(6, -2)$

Decide whether the lines with the given equations are parallel, perpendicular, or neither.

16. $y = -5x - 2$
    $y = 5x + 2$

17. $y = \frac{1}{3}x - 1$
    $y = -3x + 2$

18. $2x - 4y = 3$
    $4x - 8y = 7$

19. $2x - 5y = 8$
    $5x - 2y = 2$

20. $y = \frac{5}{6}x + 8$
    $y = -\frac{6}{5}x - 4$

21. $x - 2y = 12$
    $3x - 6y = 10$

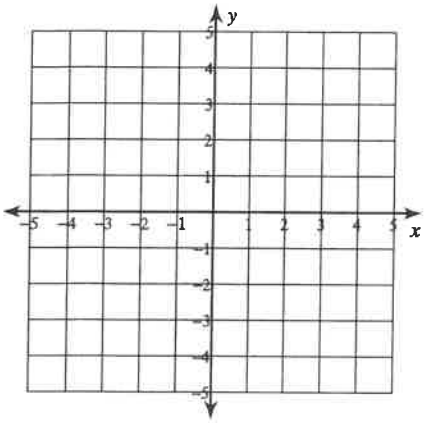
Lesson 3.7

Algebra 1 Name_____

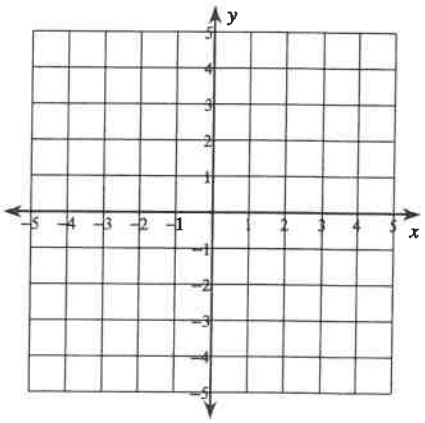
Practice Test: Solving systems by graphing, substitution, and elimination

Solve each system by graphing.

1) $y = \frac{1}{2}x - 2$
$y = 3x + 3$



2) $y = x - 4$
$y = -\frac{2}{3}x + 1$



Solve each system by substitution.

3) $-4x - 5y = 15$
$y = -5x - 3$

4) $-3x - 5y = -5$
$y = -2x + 8$

5) $6x - 3y = 7$
$-2x + y = -8$

6) $x + 8y = 18$
$-7x + 4y = -6$

Solve each system by elimination.

7) $x + y = -10$
$10x - y = -1$

8) $4x - 4y = -4$
$12x - 12y = -12$

9) $4x - 5y = 9$
$5x - 6y = 9$

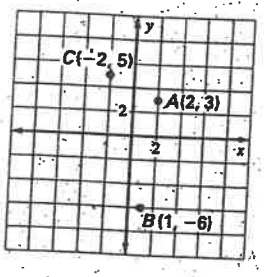
10) $5x - 7y = 19$
$-4x + 5y = -17$

3.6 cont

Answers

Practice C

1. $\frac{2}{5}$ 2. $-\frac{1}{4}$ 3. -4 4. $m_{\overleftrightarrow{AB}} = \frac{1}{3}, m_{\overleftrightarrow{CD}} = \frac{1}{3}$, yes 5. $m_{\overleftrightarrow{AB}} = -2, m_{\overleftrightarrow{CD}} = -4$, no
6. $m_{\overleftrightarrow{AB}} = -\frac{1}{2}, m_{\overleftrightarrow{CD}} = -\frac{1}{2}$, yes 7. $y = \frac{2}{5}x - 2$
8. $y = 4x - \frac{3}{5}$ 9. $y = 0$ 10. $y = 5x + 2$
11. $y = \frac{2}{3}x + \frac{16}{3}$ 12. $y = -3x - 12$
13.



14. D: $(-1, 14), (-3, -4), (5, -8)$
15. Not necessarily; both pairs could be positive, both pairs could be negative, or each pair could be different in sign.

3.7

Practice A

1. $m_{\overleftrightarrow{AC}} = 2, m_{\overleftrightarrow{BD}} = -\frac{1}{2}$, yes
2. $m_{\overleftrightarrow{AC}} = -\frac{3}{2}, m_{\overleftrightarrow{BD}} = \frac{1}{2}$, no
3. $m_{\overleftrightarrow{AC}} = 1, m_{\overleftrightarrow{BD}} = -1$, yes 4. no 5. yes
6. yes 7. yes 8. no 9. yes 10. $-\frac{1}{3}$
11. $-\frac{4}{3}$ 12. $\frac{1}{2}$ 13. $\frac{2}{5}$ 14. 2 15. $-\frac{5}{2}$
16. -1 17. $\frac{7}{6}$ 18. no 19. no 20. yes
21. no 22. $y = -3x + 5$ 23. $y = -\frac{1}{3}x - 2$
24. $y = \frac{5}{4}x - \frac{1}{4}$ 25. $y = -\frac{3}{2}x + 3$
26–28. Slopes of lines should be as follows:
26. 2; $-\frac{1}{2}$ 27. -1; 1 28. $\frac{1}{3}$; -3

3.6

Practice A

1. $\frac{1}{3}$ 2. $-\frac{3}{2}$ 3. 2 4. $\frac{2}{5}$ 5. -3 6. 0
7. $m_{\overleftrightarrow{AB}} = \frac{1}{2}, m_{\overleftrightarrow{CD}} = \frac{1}{2}$, yes
8. $m_{\overleftrightarrow{AB}} = -2, m_{\overleftrightarrow{CD}} = -\frac{3}{2}$, no
9. $m_{\overleftrightarrow{AB}} = 4, m_{\overleftrightarrow{CD}} = 4$, yes 10. $y = 4x + 5$
11. $y = -2x + 3$ 12. $y = \frac{1}{2}x - 4$
13. $y = 2x + \frac{1}{3}$ 14. $y = -3x$ 15. $y = x + \frac{3}{4}$

Practice C

1. $m_{\overleftrightarrow{AC}} = -1, m_{\overleftrightarrow{BD}} = 1$, yes
2. $m_{\overleftrightarrow{AC}} = -2, m_{\overleftrightarrow{BD}} = \frac{2}{3}$, no
3. $m_{\overleftrightarrow{AC}} = \frac{5}{2}, m_{\overleftrightarrow{BD}} = -\frac{2}{5}$, yes 4. no 5. yes
6. yes 7. yes 8. no 9. yes, slopes are negative reciprocals 10. yes, slopes are negative reciprocals 11. no 12. $y = -6x - 17$
13. $y = -10x + 12$ 14. $y = \frac{2}{5}x + 8$
15. $y = -\frac{3}{2}x + 7$ 16. neither
17. perpendicular 18. parallel
19. neither 20. perpendicular 21. parallel

Answers to Practice Test: Solving systems by graphing, substitution, and elimination

1) $(-2, -3)$
2) $(3, -1)$
3) $(0, -3)$
4) $(5, -2)$
5) No solution
6) $(2, 2)$
7) $(-1, -9)$
8) No solution
9) $(-9, -9)$
10) $(8, 3)$