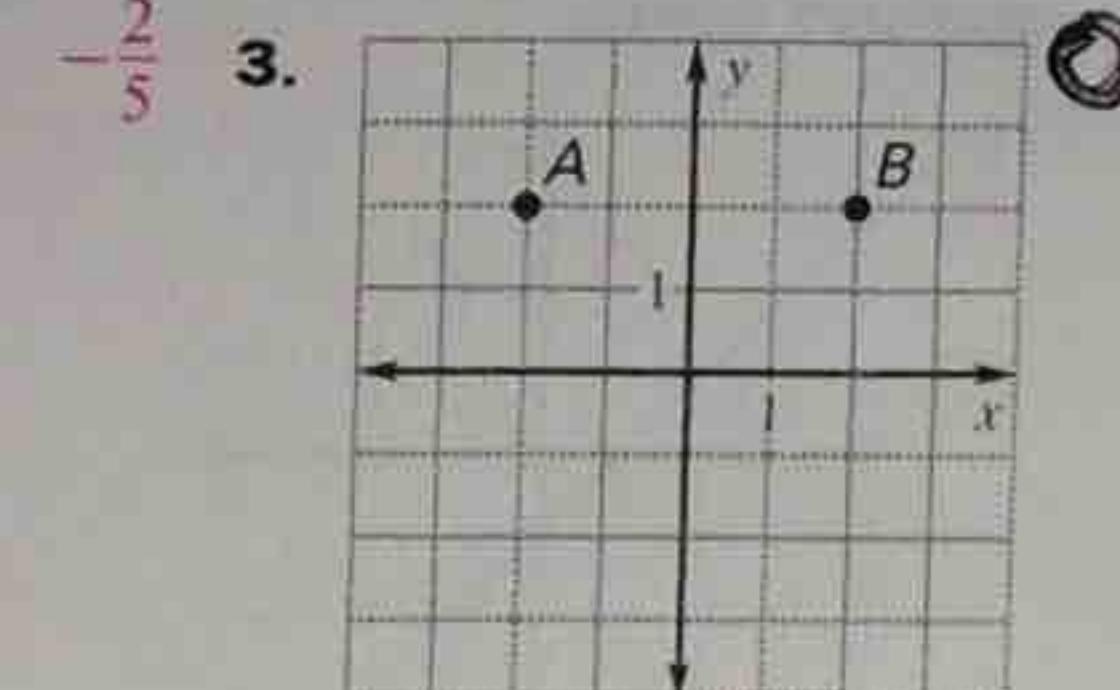
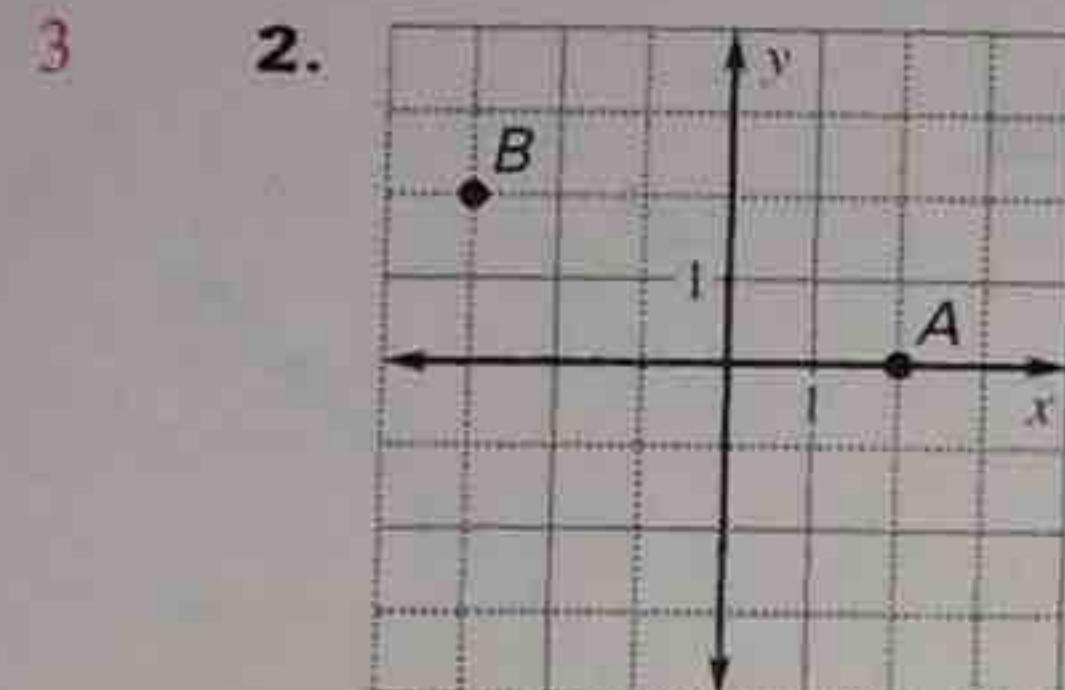
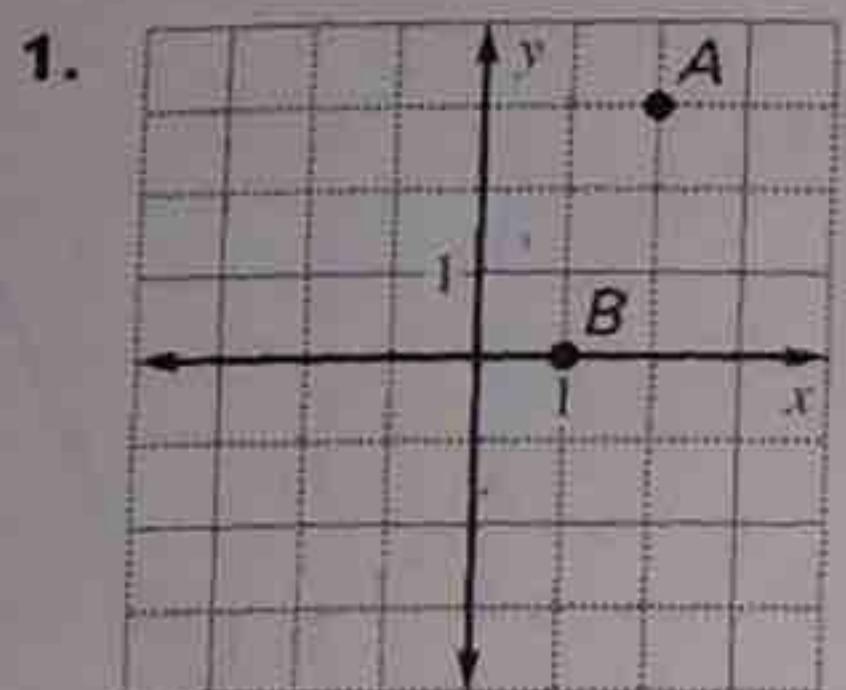
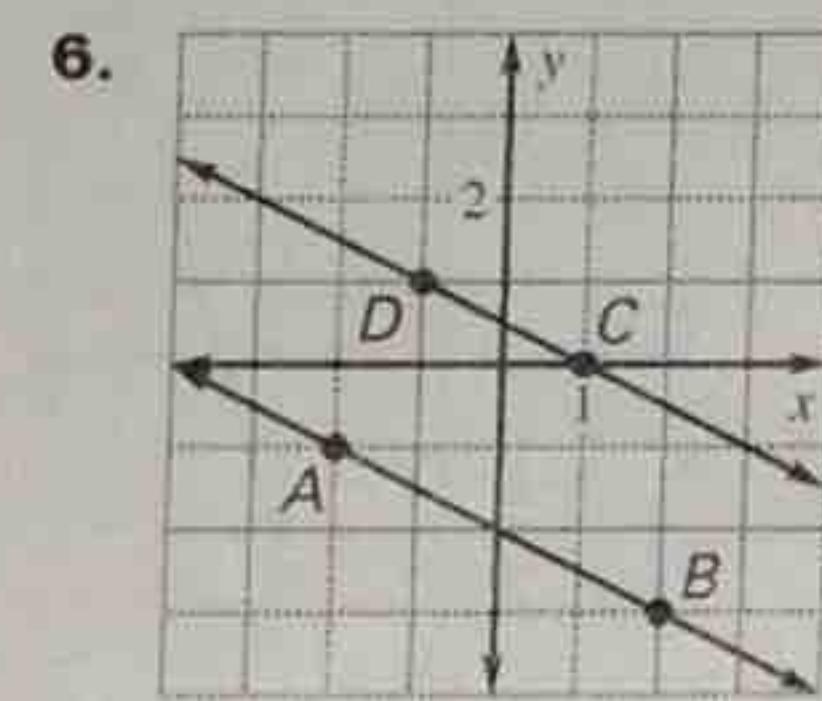
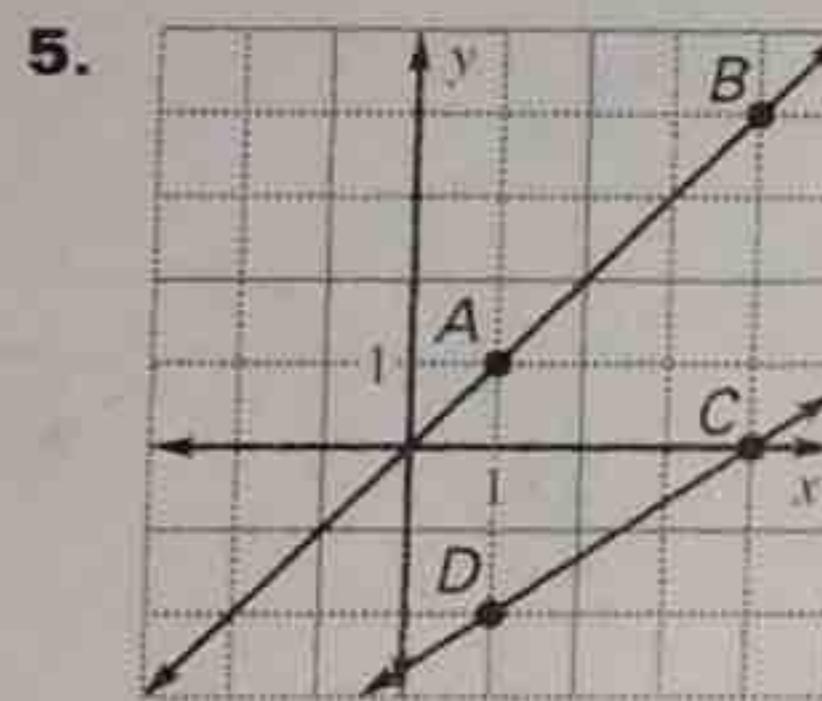
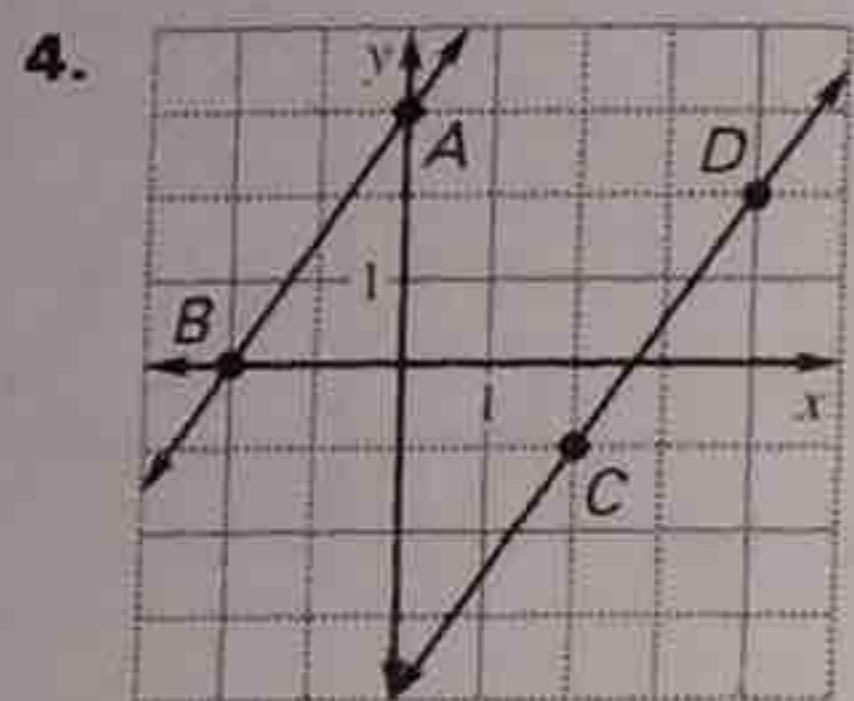


**Practice B**  
**3.4** For use with pages 171–179

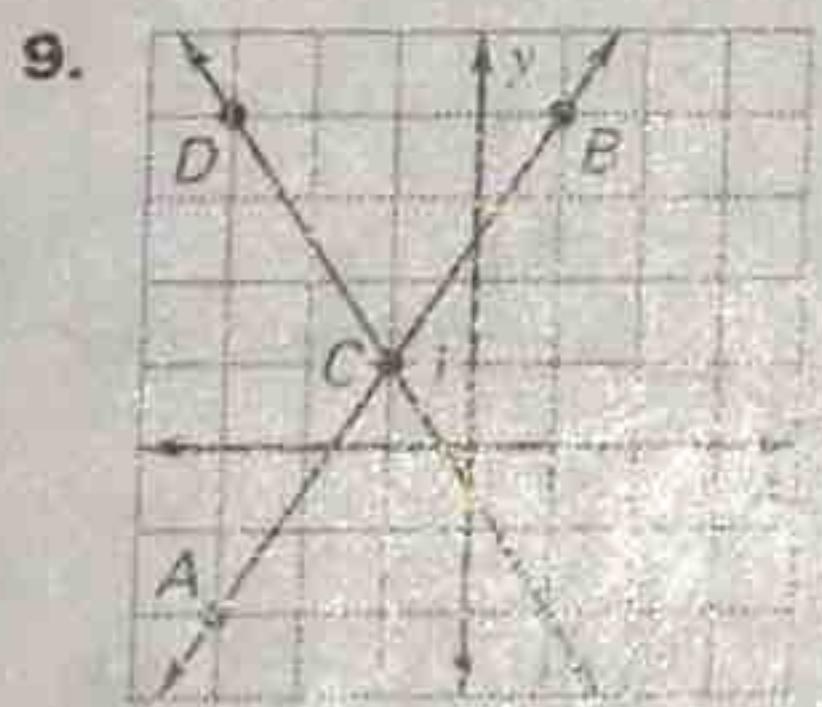
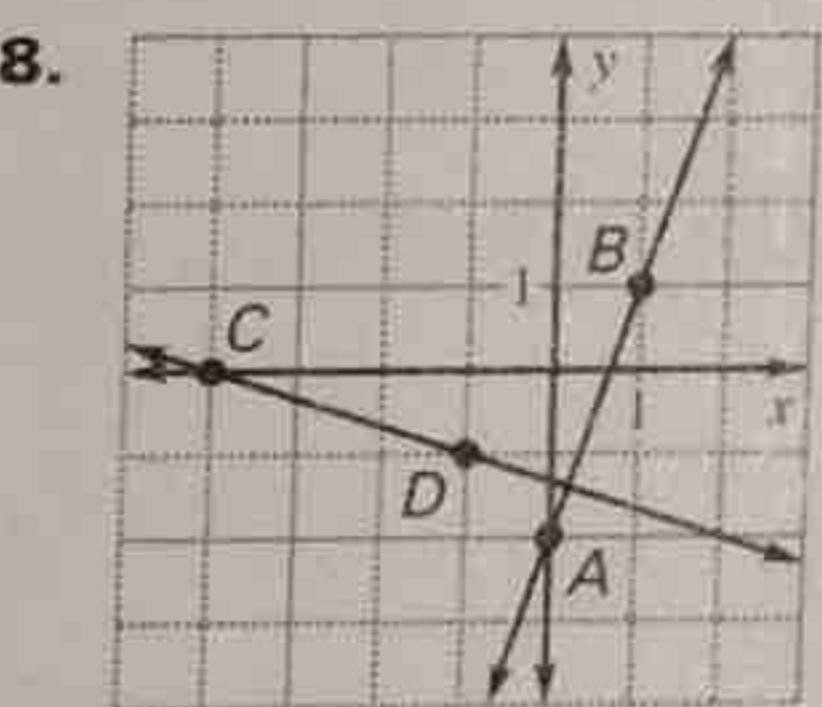
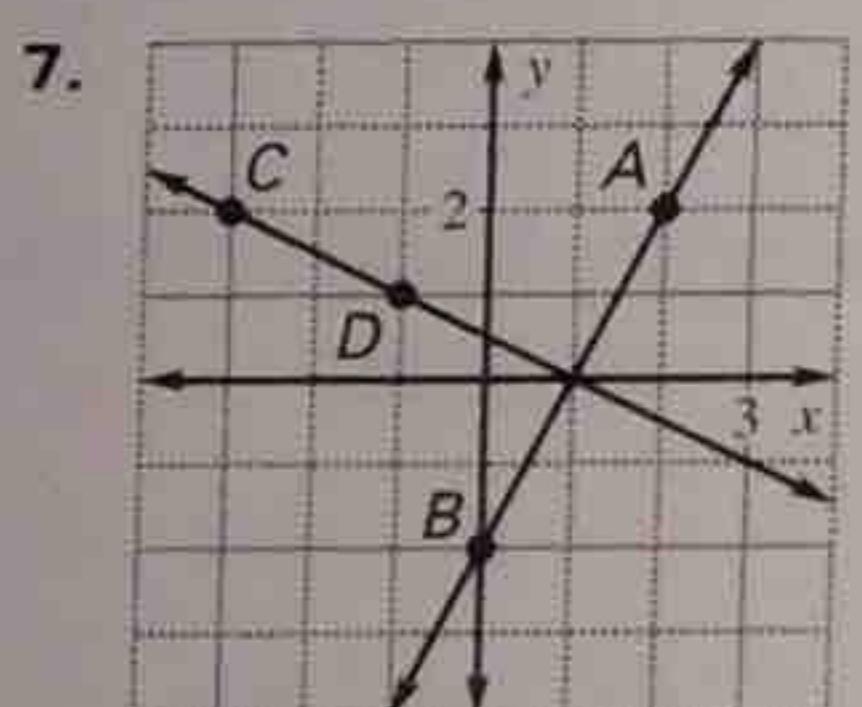
Find the slope of the line that passes through the points.



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



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



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

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

Line 2:  $(0, 0), (3, 1)$   
parallel

13. Line 1:  $(-3, 4), (-3, 1)$

Line 2:  $(2, 1), (5, 5)$   
neither

11. Line 1:  $(0, 1), (1, 3)$

Line 2:  $(4, -1), (5, 2)$   
neither

14. Line 1:  $(-5, 2), (-2, 2)$

Line 2:  $(2, 1), (4, 1)$   
parallel

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

Line 2:  $(-2, 2), (0, 4)$   
perpendicular

15. Line 1:  $(-2, 5), (1, 4)$

Line 2:  $(4, 0), (5, 3)$   
perpendicular

Tell whether the intersection of  $\overrightarrow{AB}$  and  $\overrightarrow{CD}$  forms a right angle.

16.  $A(-8, 3), B(1, 2), C(0, 9), D(-1, 0)$  yes

17.  $A(3, 2), B(5, 10), C(7, -4), D(3, -3)$  yes

18.  $A(5, 4), B(-3, 20), C(9, -2), D(6, 4)$  no

19.  $A(7, 12), B(1, 5), C(10, -7), D(3, -1)$  yes

20.  $A(-8, 17), B(-5, 18), C(6, 11), D(5, 8)$  no

21.  $A(-7, 3), B(-10, 15), C(-1, 5), D(4, 35)$  no

4.  $m_{\overrightarrow{AB}} = \frac{3}{2}, m_{\overrightarrow{CD}} = \frac{3}{2}$ ; yes

5.  $m_{\overrightarrow{AB}} = 1, m_{\overrightarrow{CD}} = \frac{2}{3}$ ; no

6.  $m_{\overrightarrow{AB}} = -\frac{1}{2}, m_{\overrightarrow{CD}} = -\frac{1}{2}$ ; yes

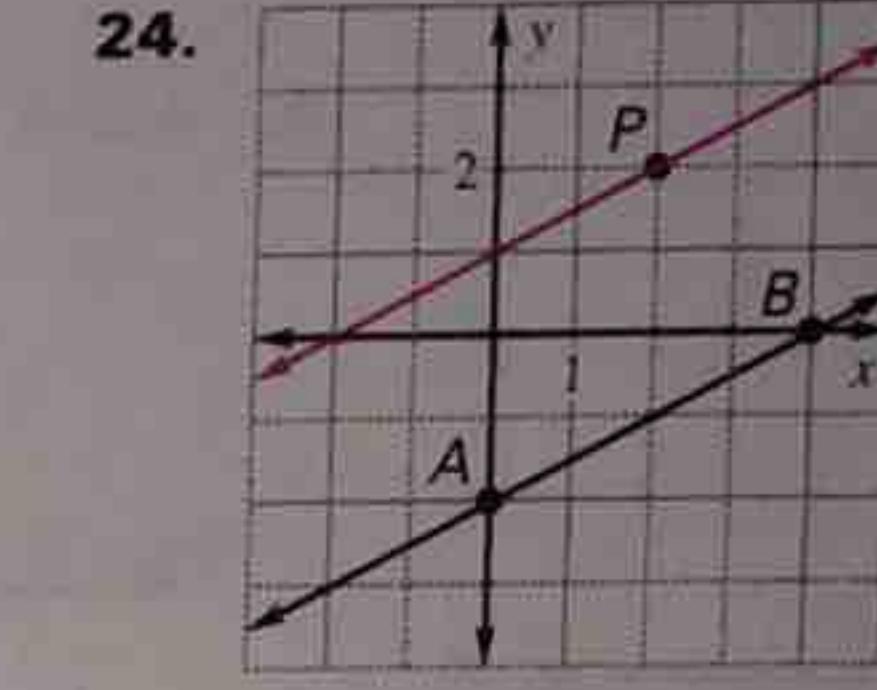
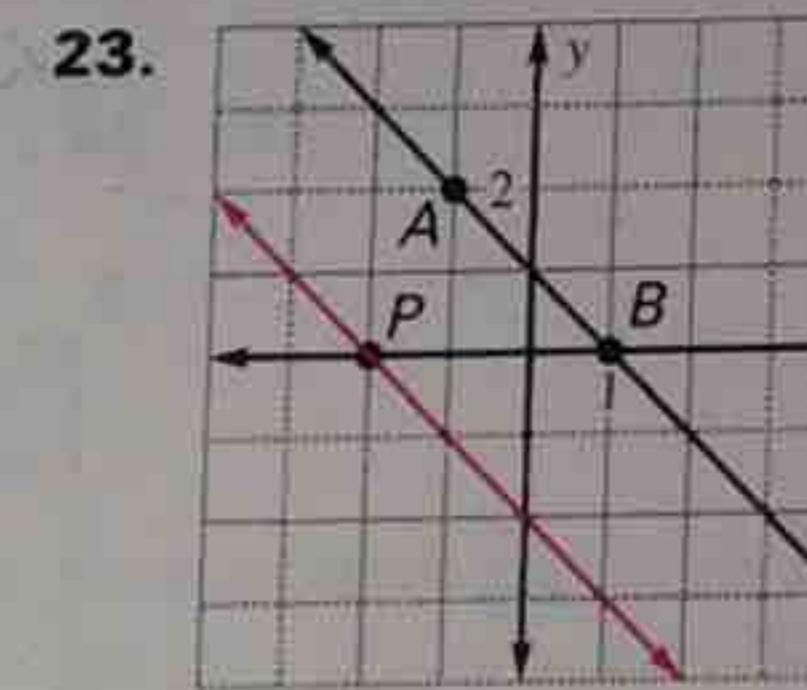
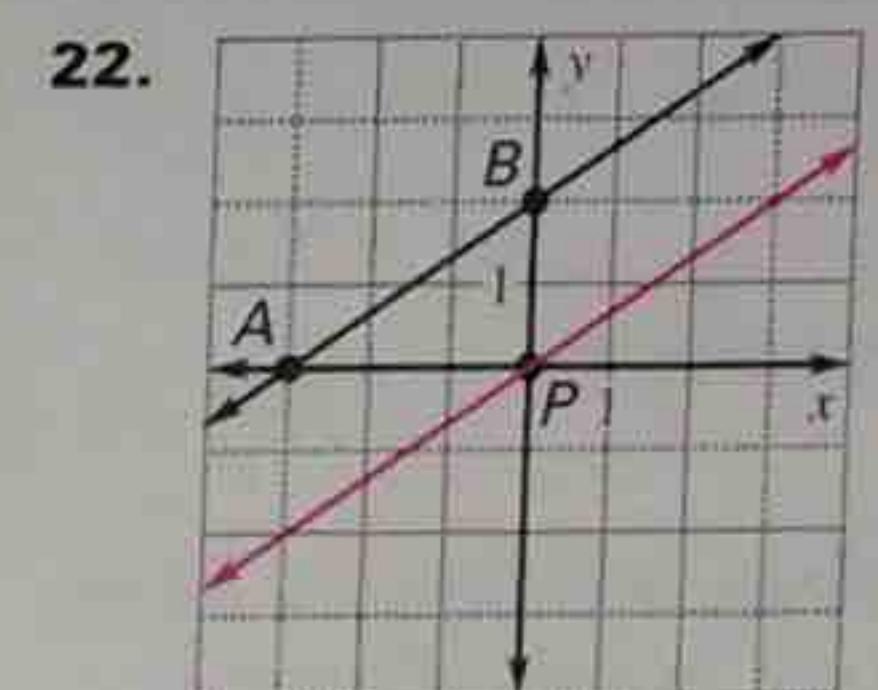
7.  $m_{\overrightarrow{AB}} = 2, m_{\overrightarrow{CD}} = -\frac{1}{2}$ ; yes

8.  $m_{\overrightarrow{AB}} = 3, m_{\overrightarrow{CD}} = -\frac{1}{3}$ ; yes

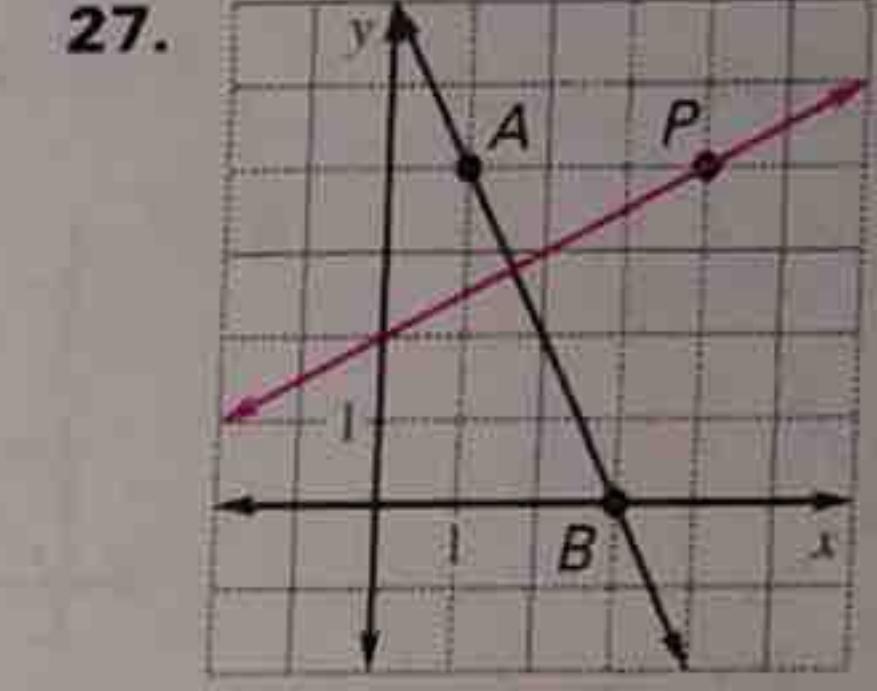
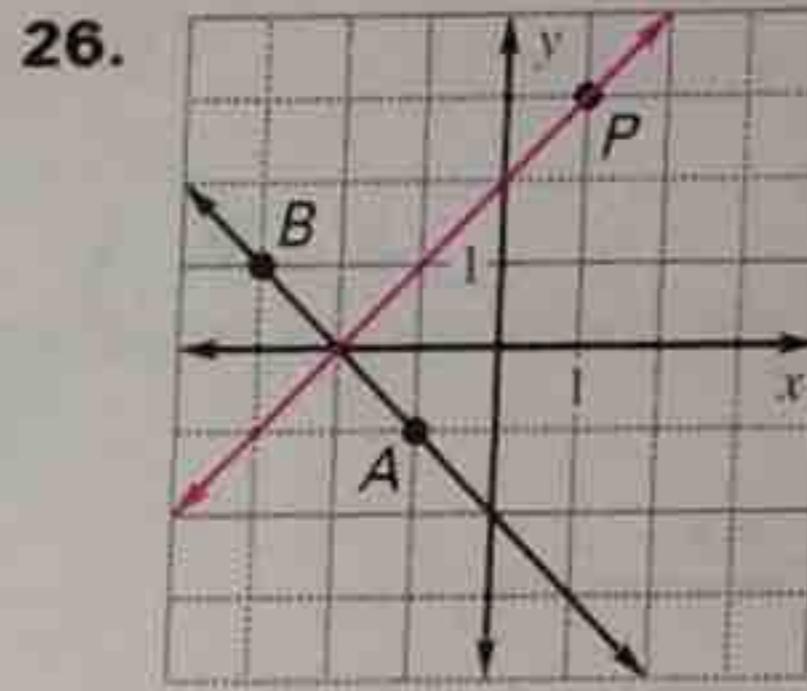
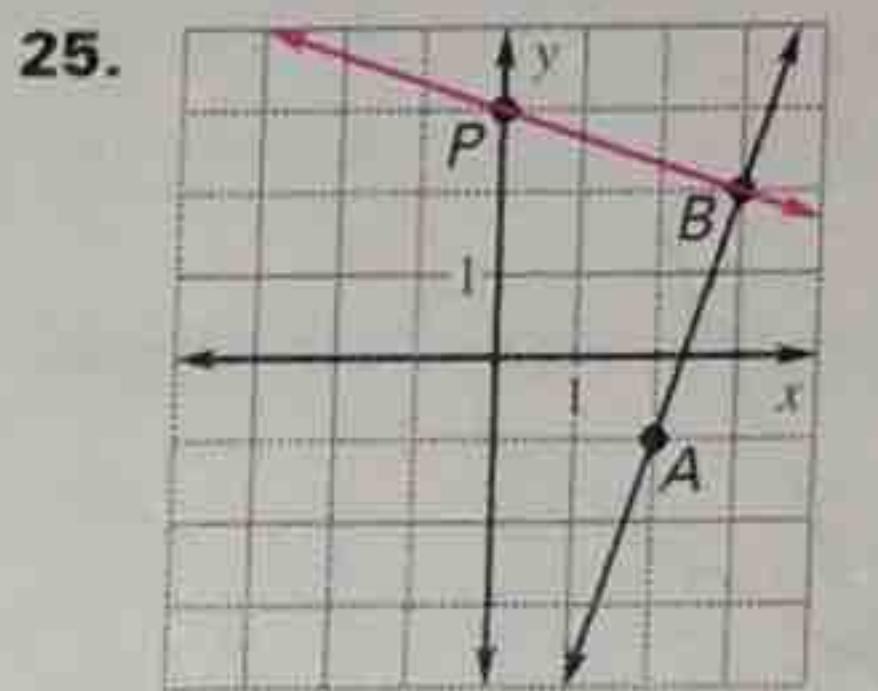
9.  $m_{\overrightarrow{AB}} = \frac{3}{2}, m_{\overrightarrow{CD}} = -\frac{3}{2}$ ; no

**Practice B** continued  
**3.4** For use with pages 171–179

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 28 and 29, consider the three given lines.

Line  $a$ : through the point  $(2, 0)$  with a  $y$ -intercept of  $(0, 1)$

Line  $b$ : through the point  $(2, 0)$  with a  $y$ -intercept of  $(0, 5)$

Line  $c$ : through the point  $(2, 0)$  with a  $y$ -intercept of  $(0, 3)$

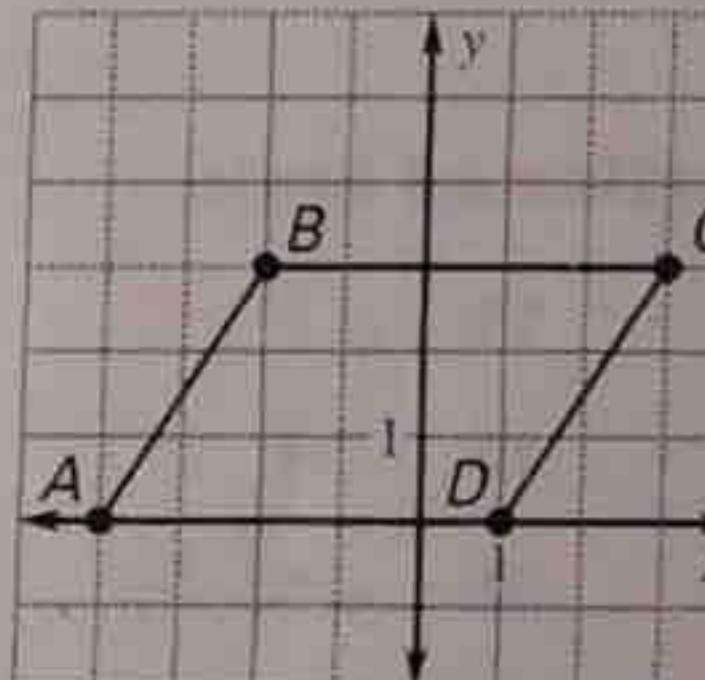
28. Which line is most steep? line  $b$

29. Which line is least steep? line  $a$

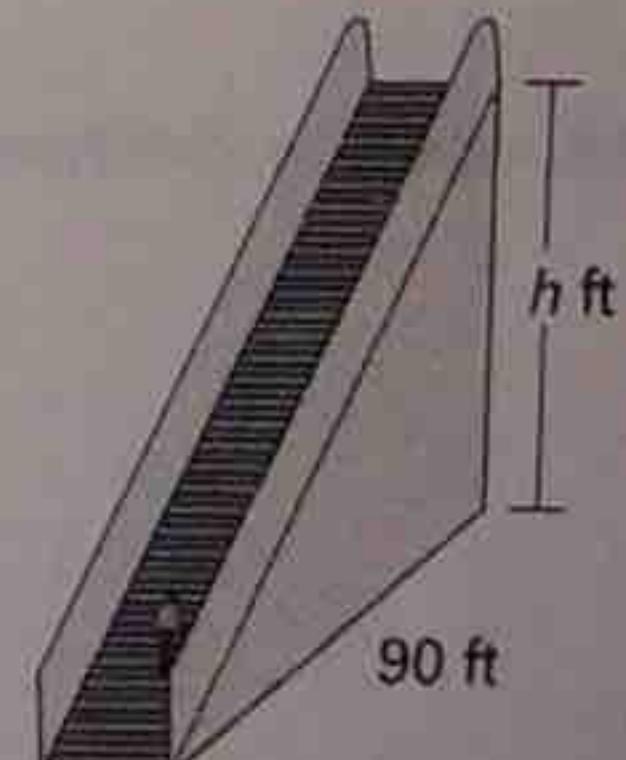
30. Parallelograms A parallelogram is a four-sided figure whose opposite sides are parallel. Explain why the figure shown is a parallelogram.

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

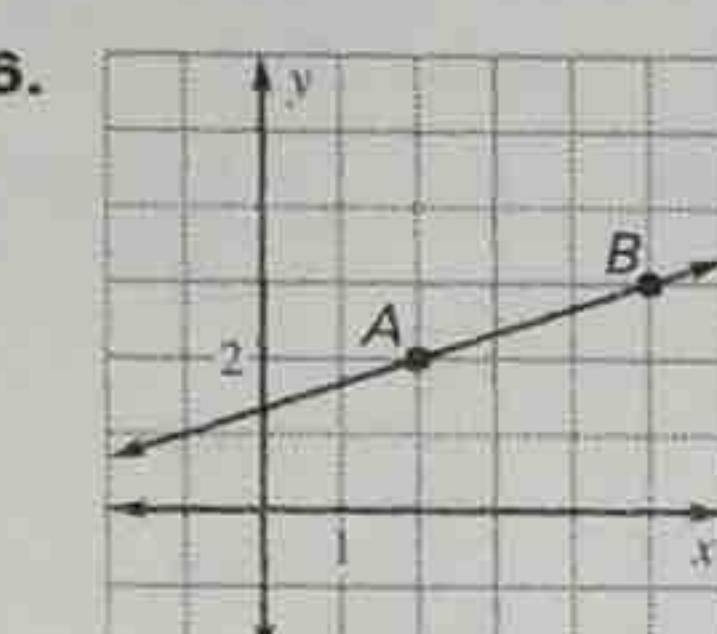
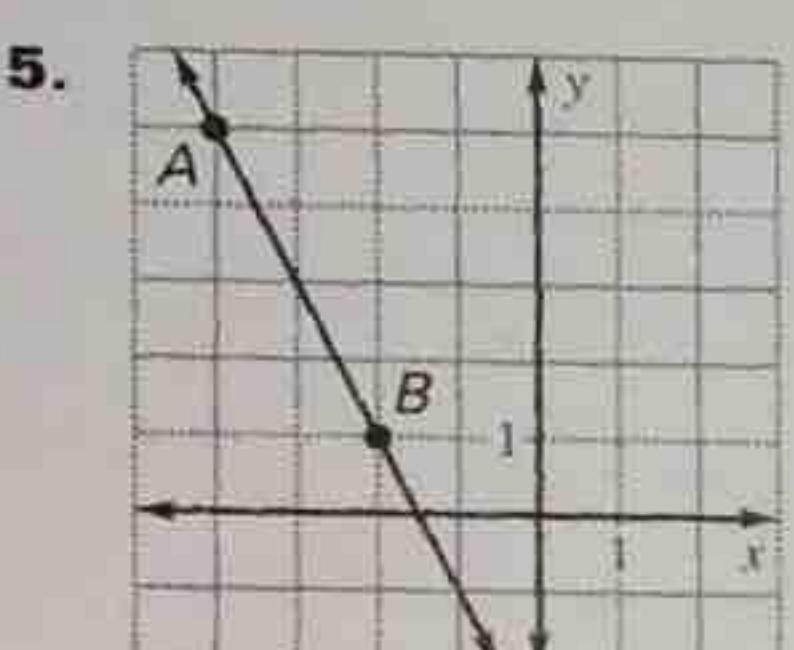
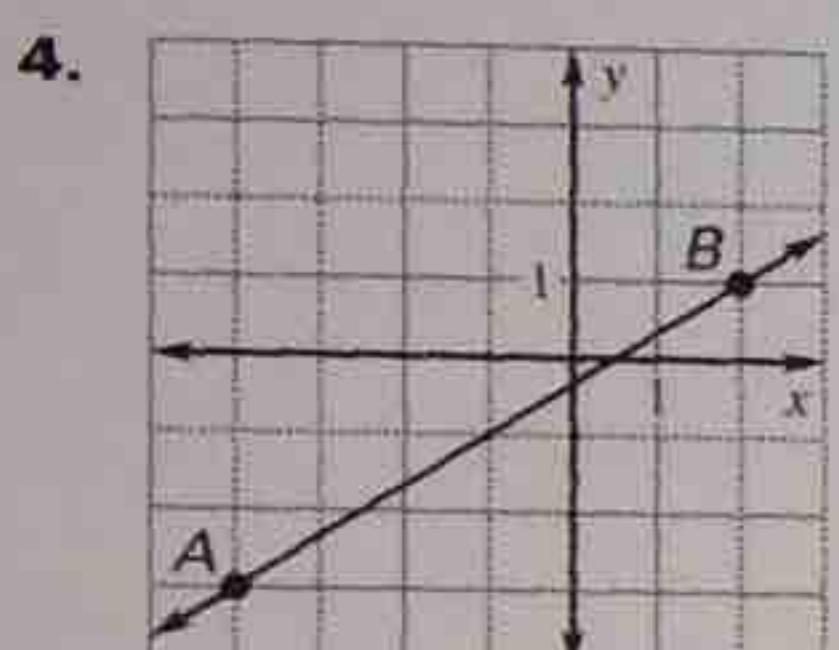
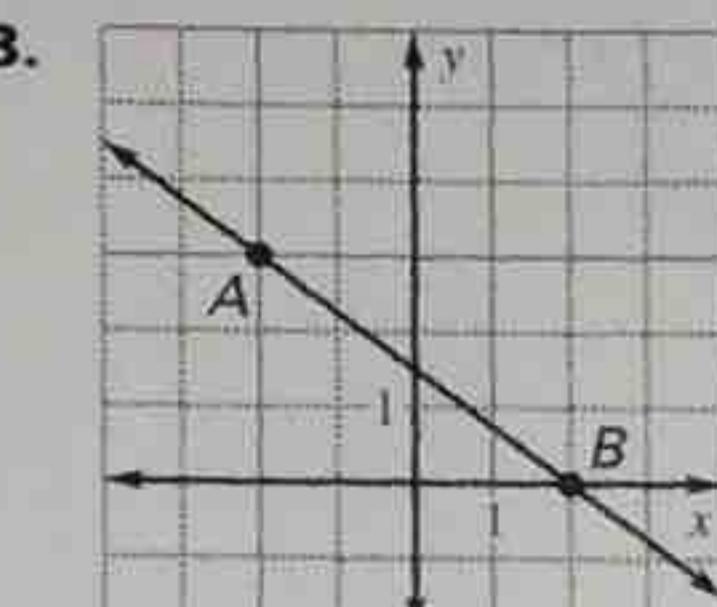
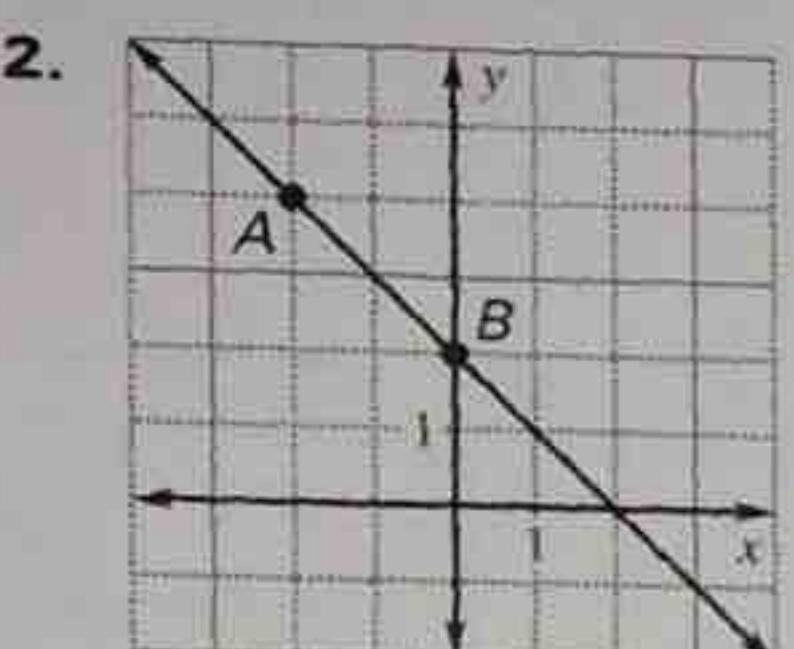
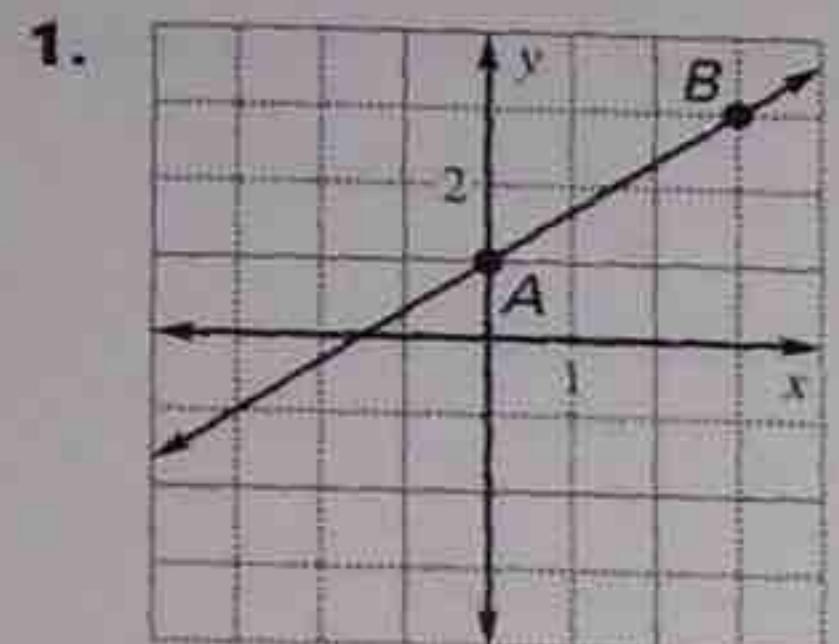
The opposite sides of the figure are parallel because they have the same slope.



31. 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. 60 feet



**Write an equation of line  $AB$  in slope-intercept form.** See below.



**Write an equation of the line that passes through point  $P$  and is parallel to the line with the given equation.** See below.

7.  $P(-2, 0); y = -\frac{1}{2}x + 6$

8.  $P(3, 9); y = 4x - 8$

9.  $P(-5, -4); y = -2x - 10$

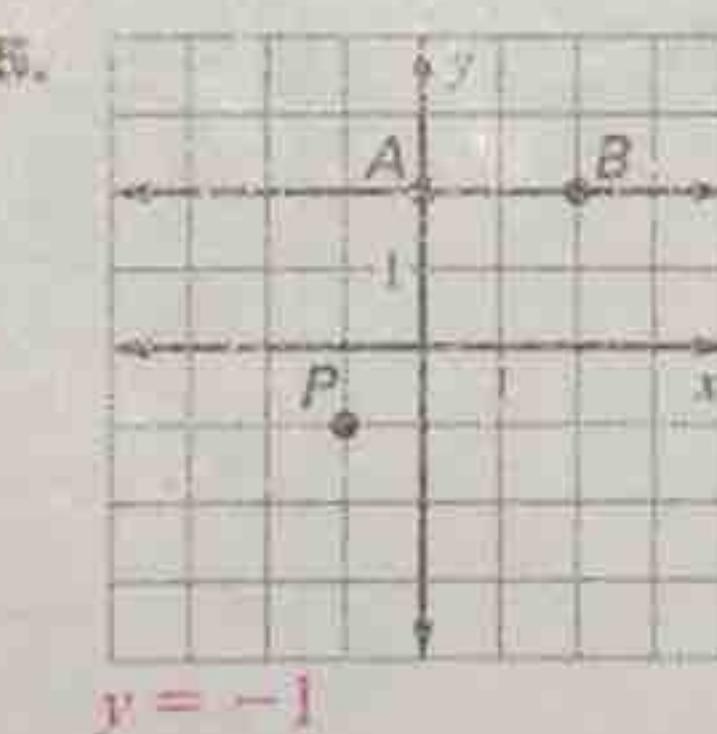
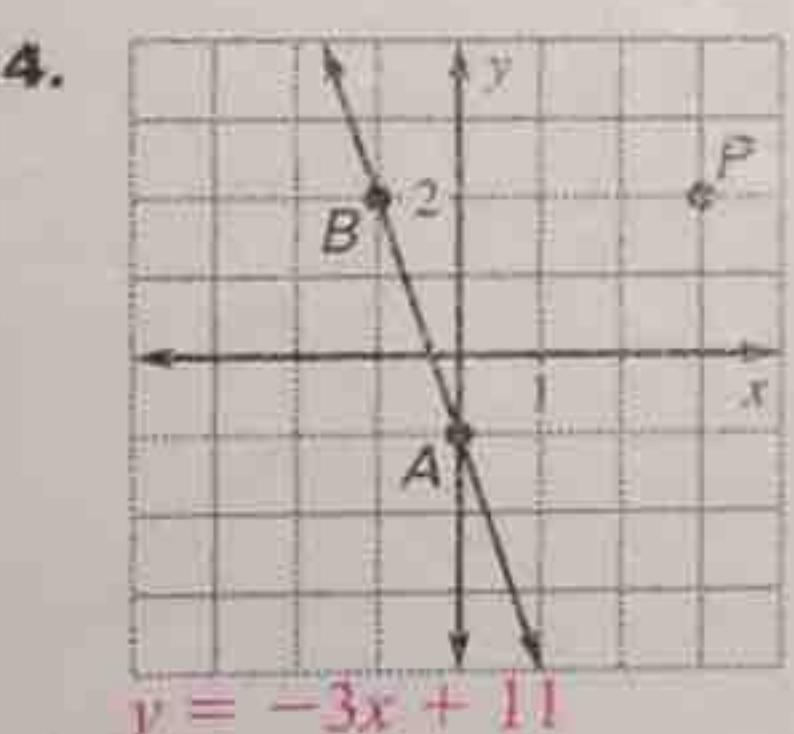
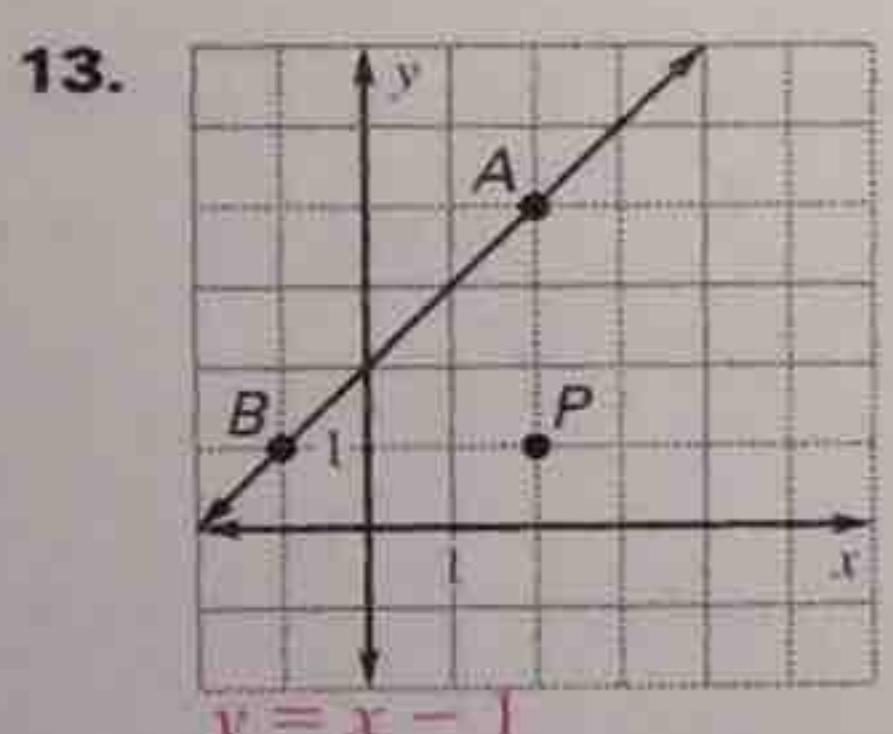
**Write an equation of the line that passes through point  $P$  and is perpendicular to the line with the given equation.** See below.

10.  $P(5, 20); y = \frac{1}{2}x + 8$

11.  $P(4, 5); y = -\frac{1}{3}x - 6$

12.  $P(3, 5); y = 4$

**Write an equation of the line that passes through point  $P$  and is parallel to line  $AB$ .**

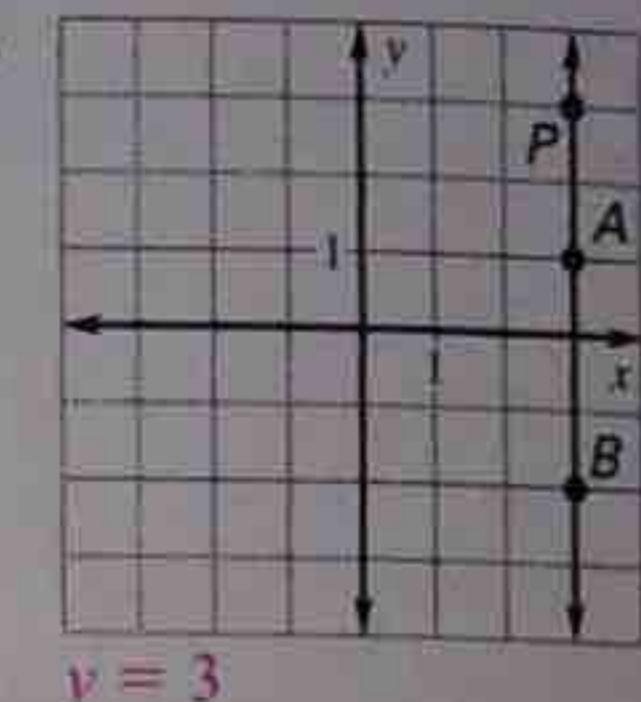
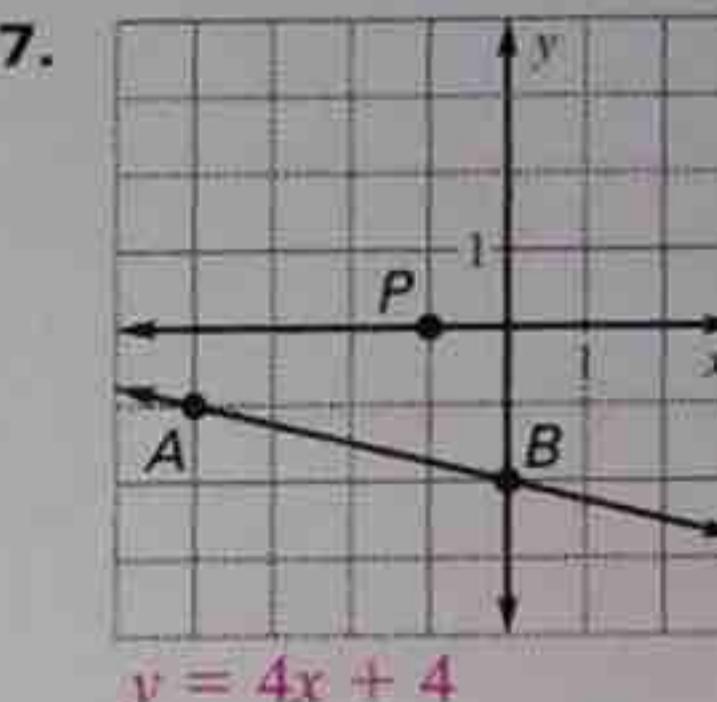
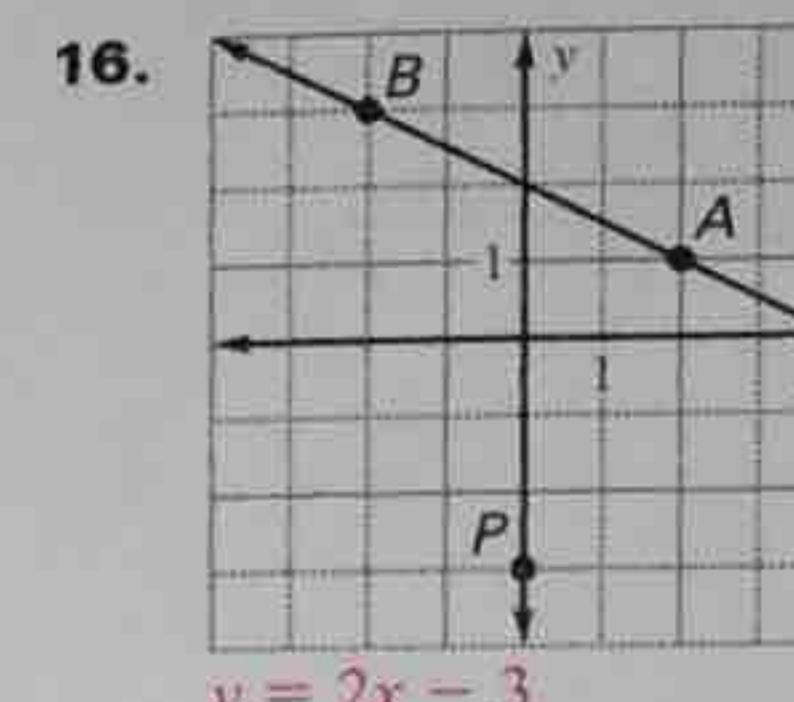


1.  $y = \frac{2}{3}x + 1$  2.  $y = -x + 2$  3.  $y = -\frac{3}{4}x + \frac{3}{2}$  4.  $y = \frac{2}{3}x - \frac{1}{3}$

5.  $y = -2x - 3$  6.  $y = \frac{1}{3}x + \frac{4}{3}$  7.  $y = -\frac{1}{2}x - 1$  8.  $y = 4x - 3$

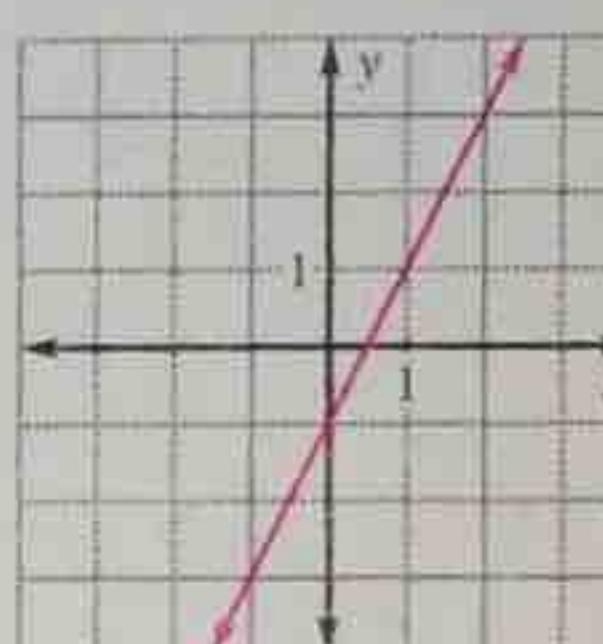
9.  $y = -2x - 14$  10.  $y = -2x + 30$  11.  $y = 3x - 7$  12.  $x = 3$

**Write an equation of the line that passes through point  $P$  and is perpendicular to line  $AB$ .**

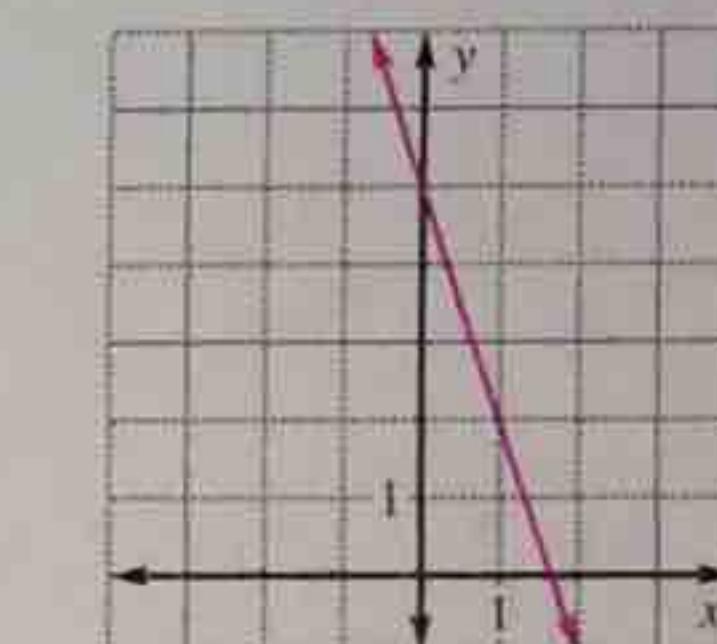


**Graph the equation.**

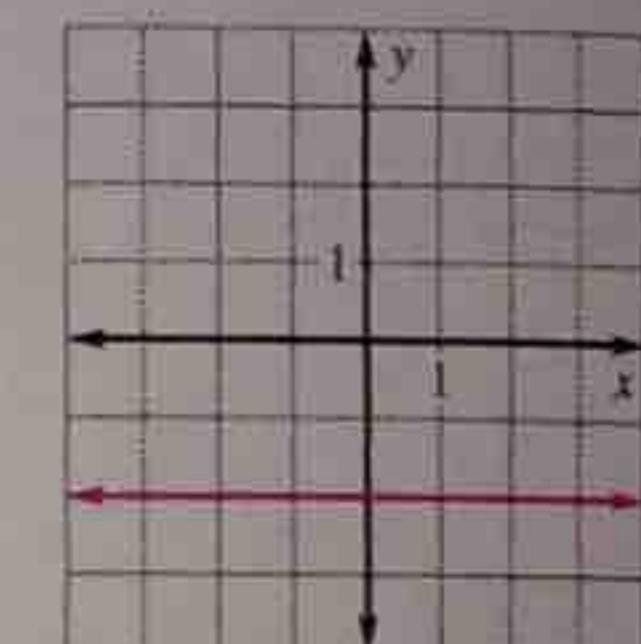
19.  $-2x + y = -1$



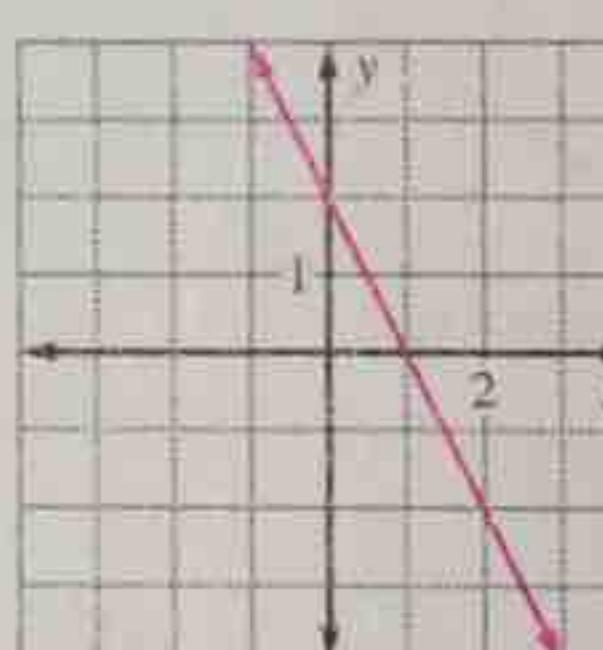
20.  $y - 3 = -3x + 2$



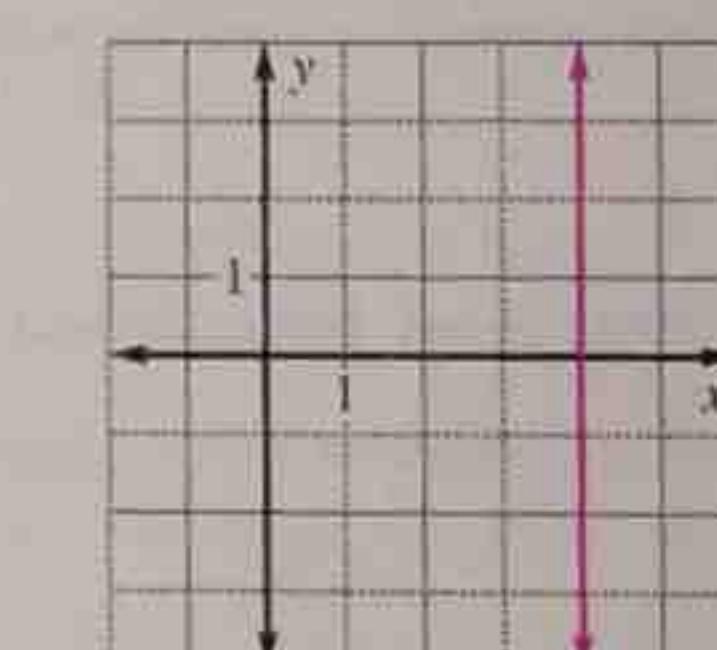
21.  $y + 6 = 4x$



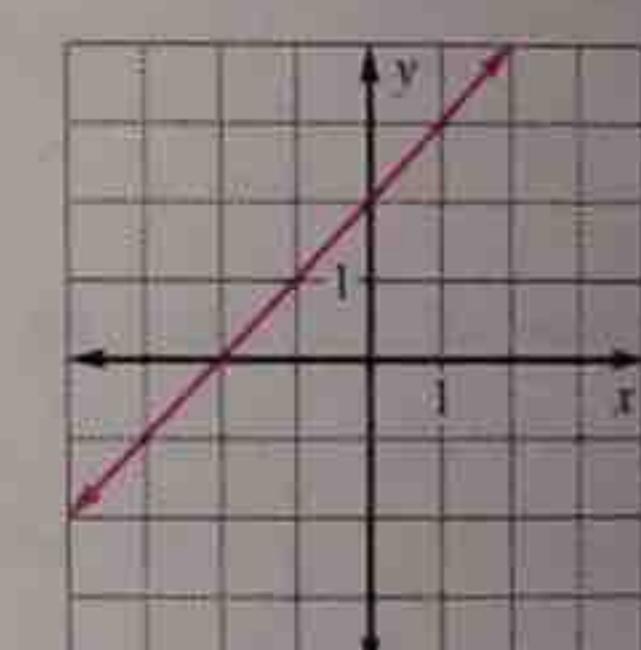
22.  $2(x - 1) = -y$



23.  $x - 4 = 0$

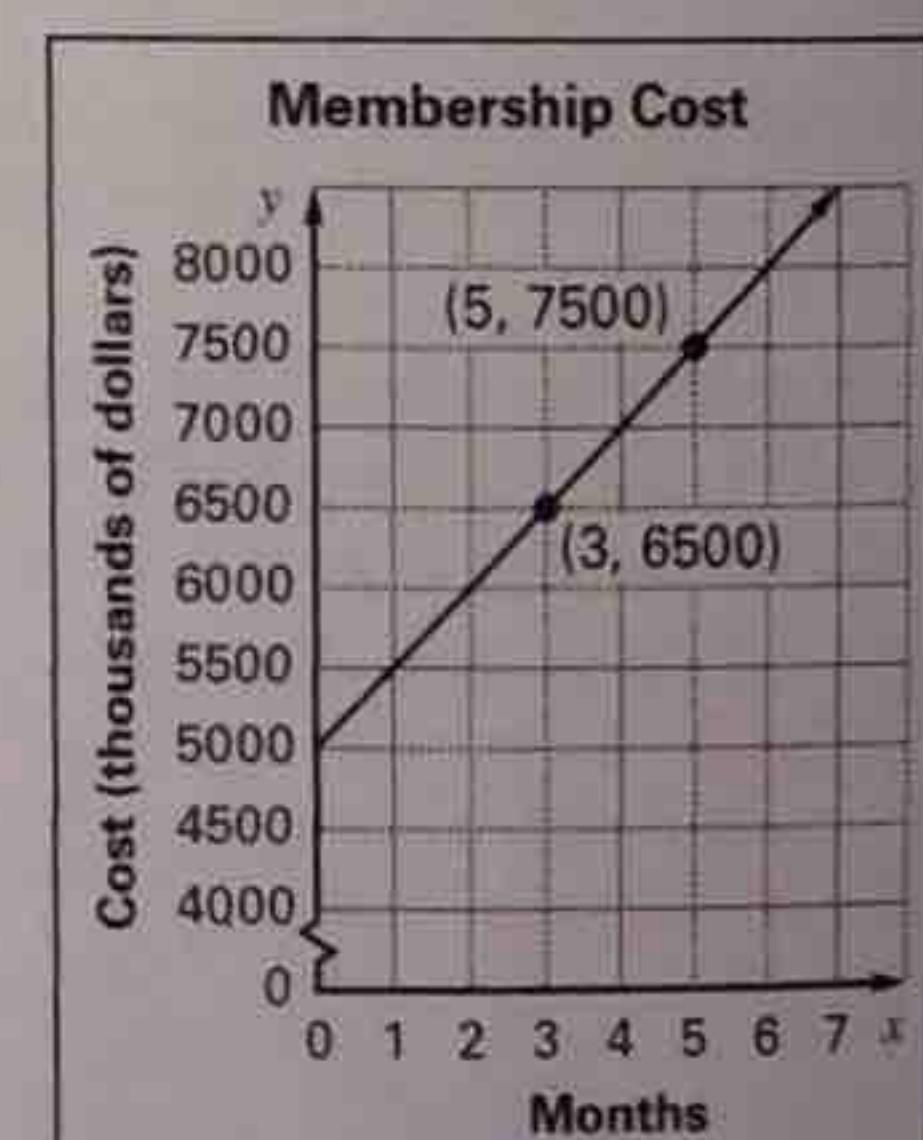


24.  $2y - 4 = 2x$



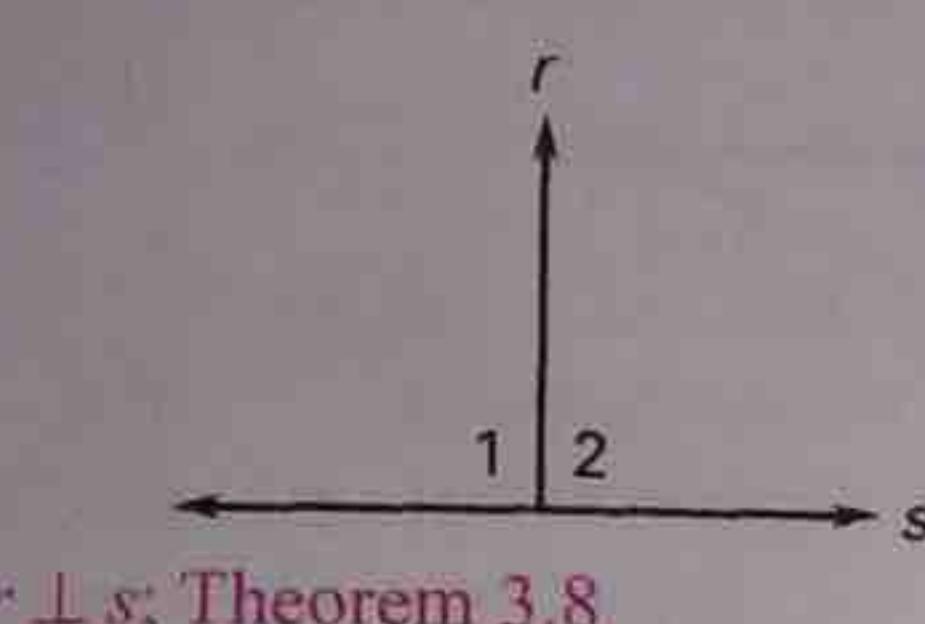
25. **Country Club** The graph models the total cost of joining a country club. Write an equation of the line. Explain the meaning of the slope and the  $y$ -intercept of the line.

$y = 500x + 5000$ ; The slope is the monthly fee, \$500, and the  $y$ -intercept is the initial cost to join the club, \$5000.

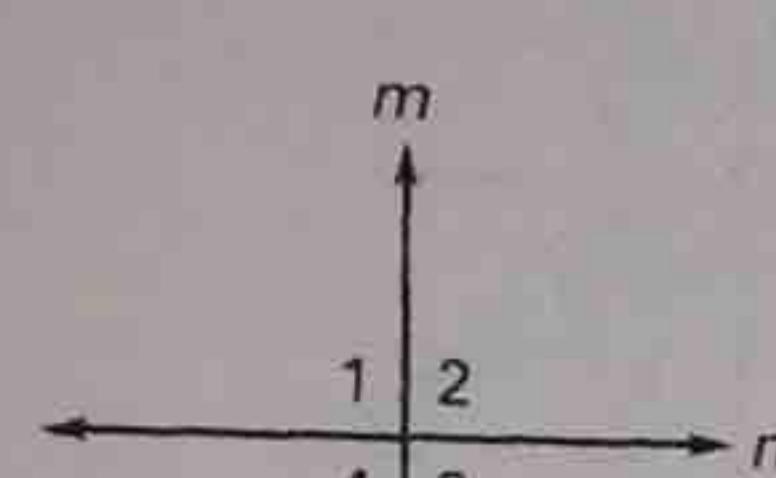


What can you conclude from the given information? State the reason for your conclusion.

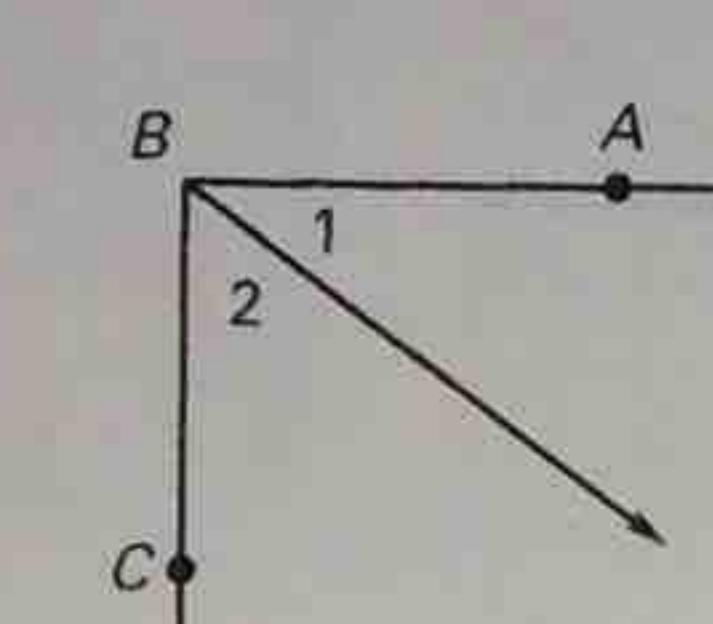
1.  $\angle 1 \cong \angle 2$



2.  $n \perp m$

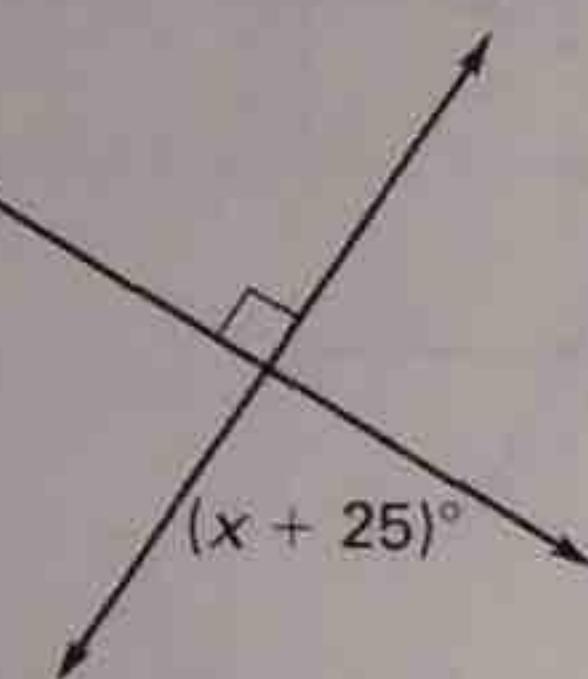


3.  $\overrightarrow{BA} \perp \overrightarrow{BC}$



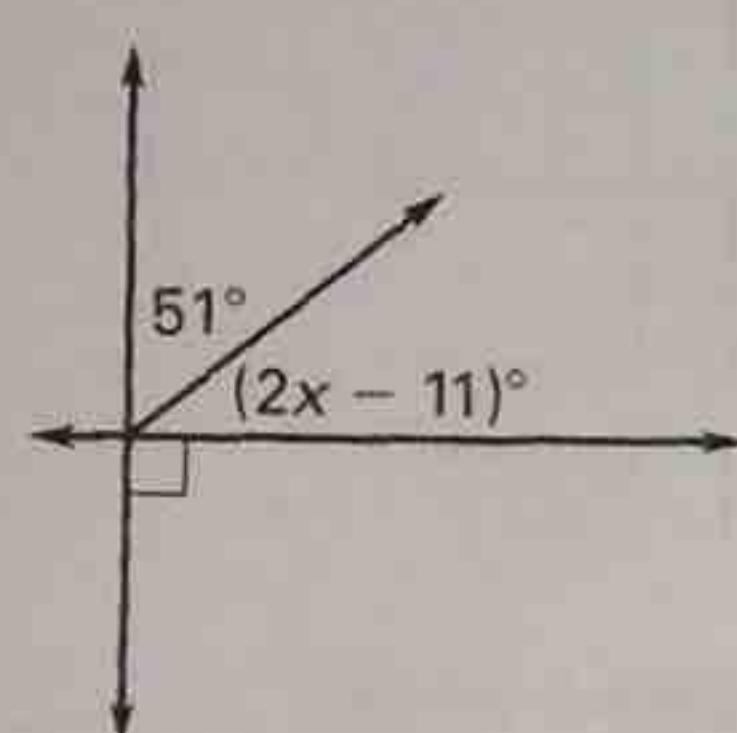
Find the value of  $x$ .

4.



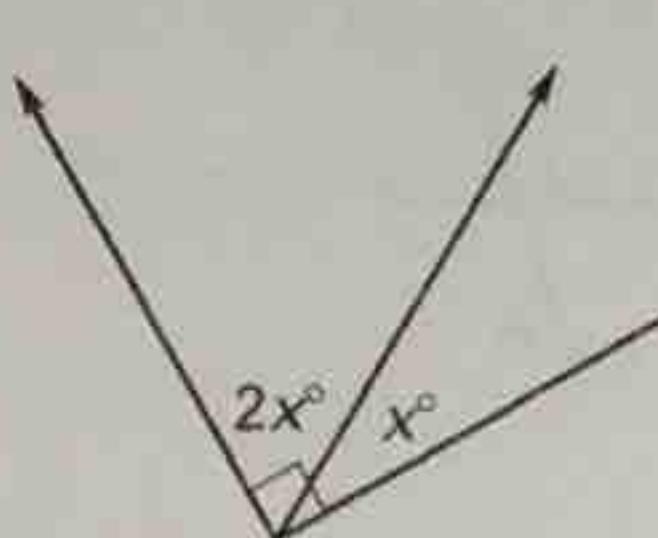
65

5.



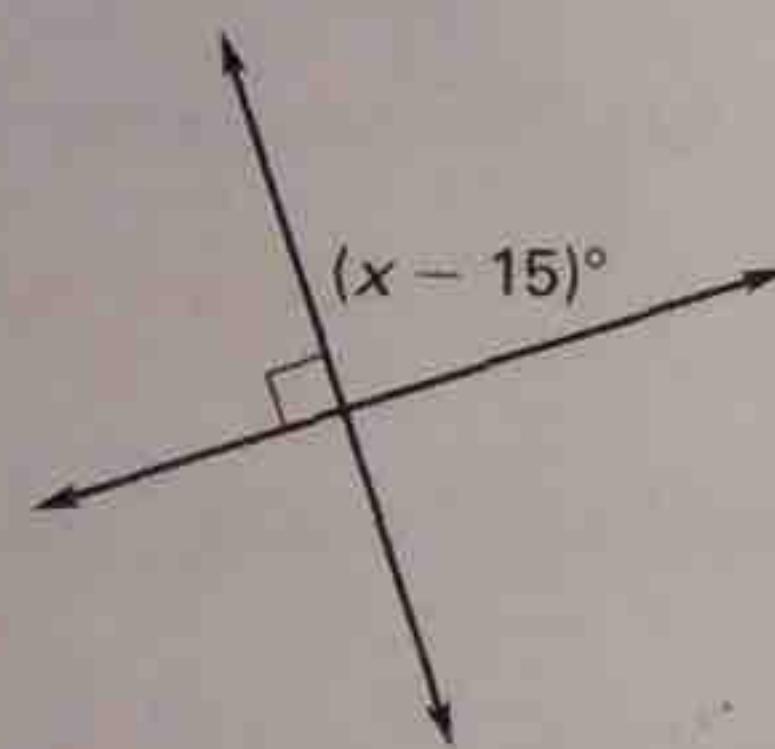
25

6.



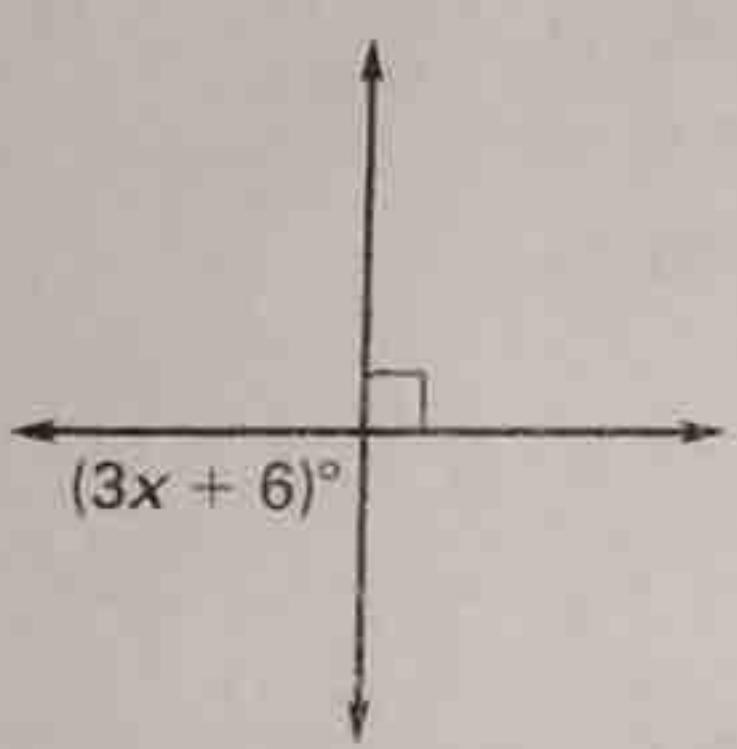
30

7.



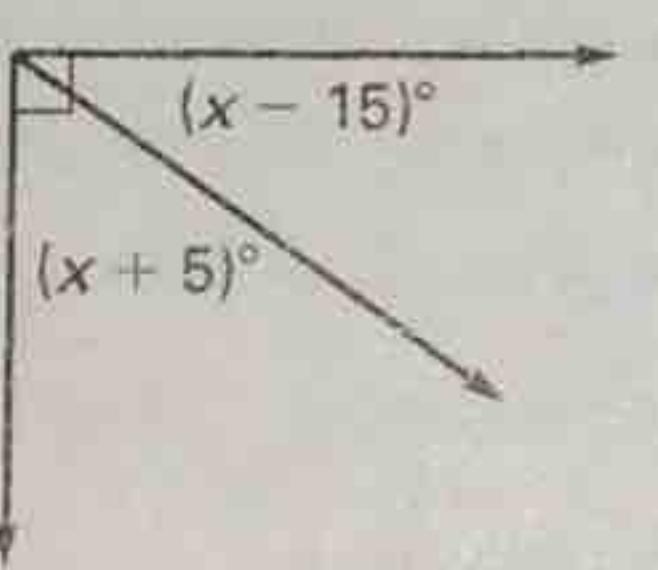
105

8.



28

9.



50

Find the measure of the indicated angle.

10.  $\angle 1$   $90^\circ$

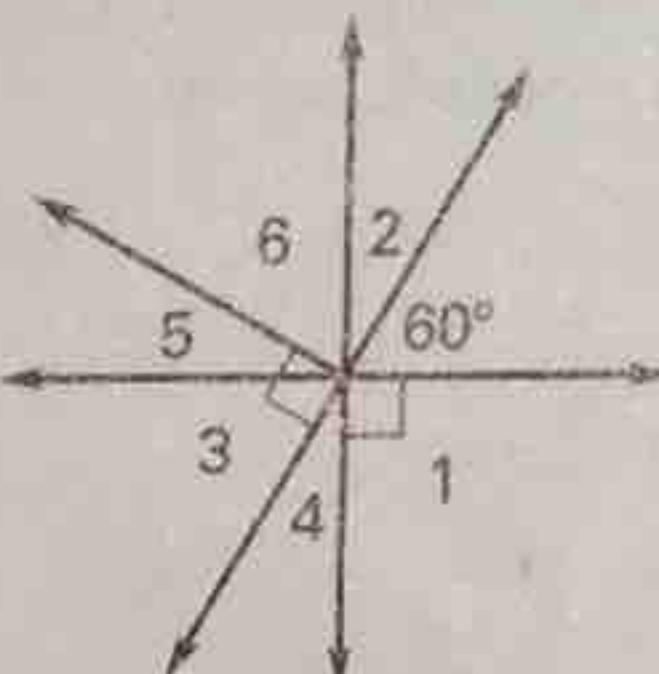
11.  $\angle 2$   $30^\circ$

12.  $\angle 3$   $60^\circ$

13.  $\angle 4$   $30^\circ$

14.  $\angle 5$   $30^\circ$

15.  $\angle 6$   $60^\circ$

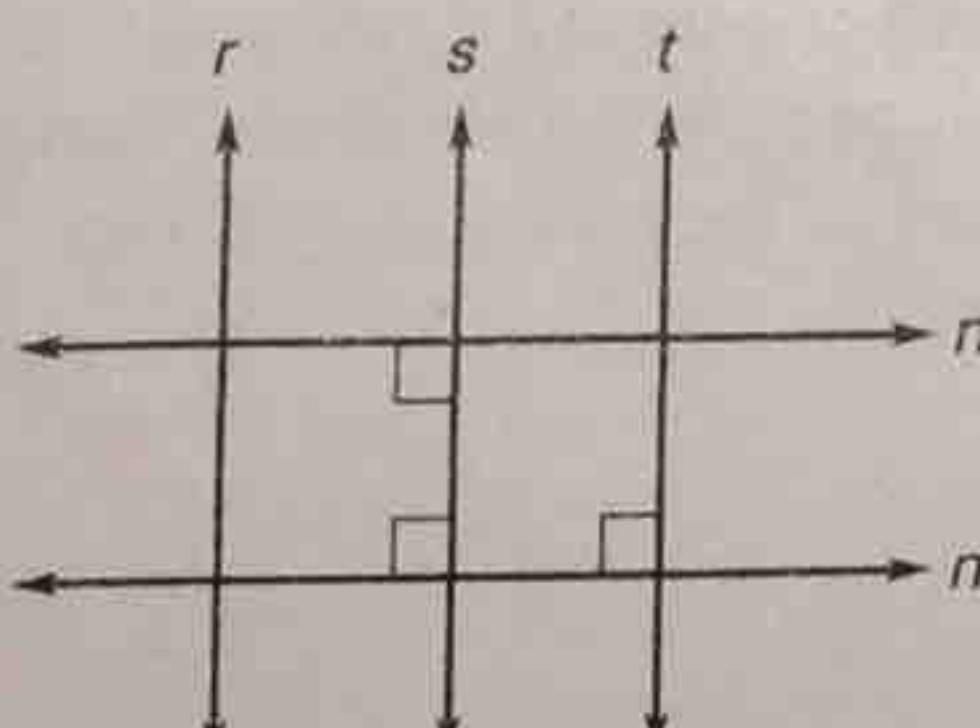


In Exercises 16–18, use the diagram.

16. Is  $r \parallel s$ ? no

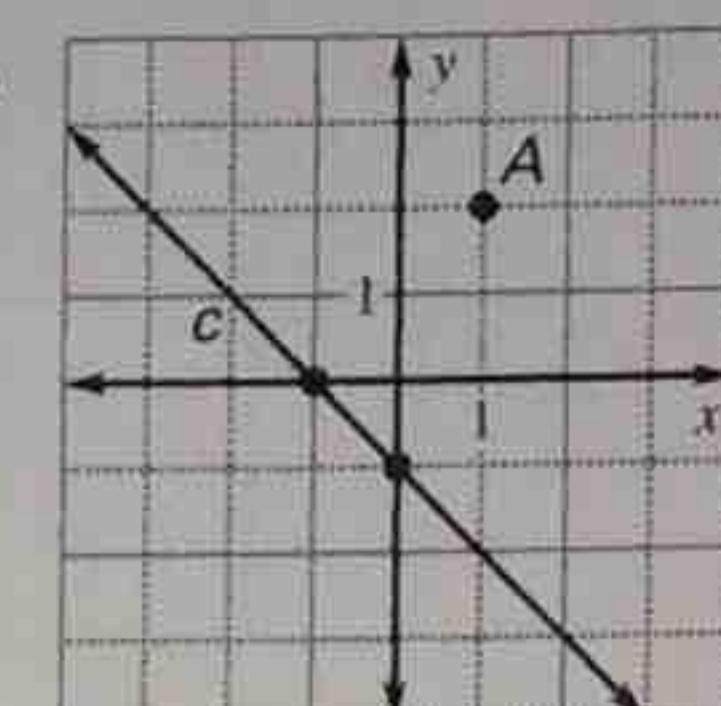
17. Is  $m \parallel n$ ? yes

18. Is  $s \parallel t$ ? yes

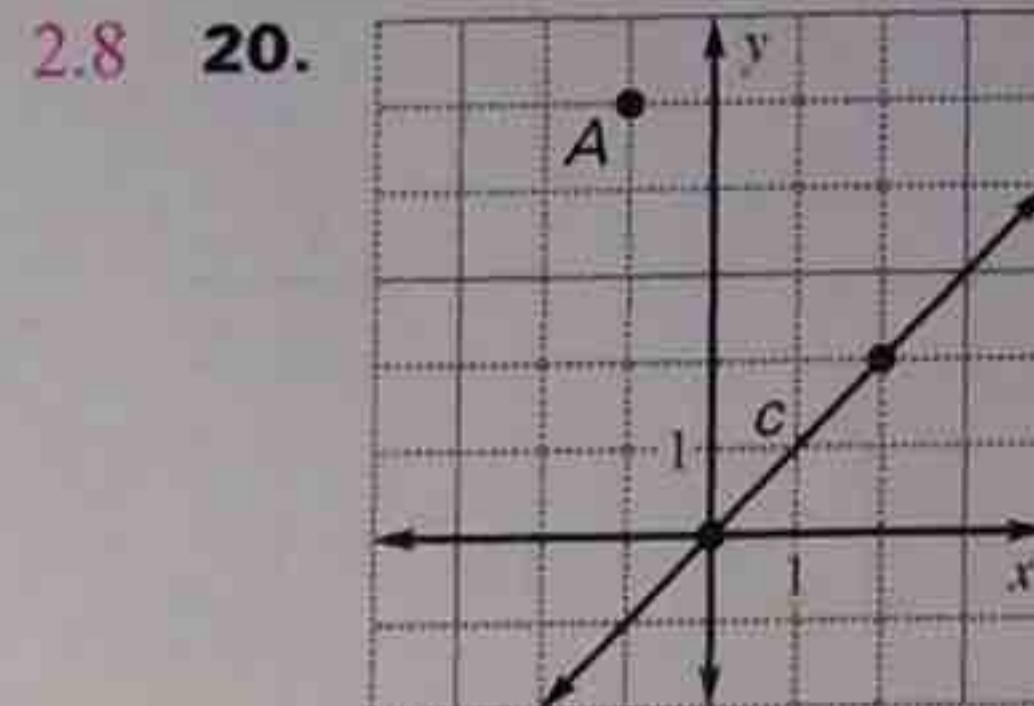


Find the distance from point  $A$  to line  $c$ . Round your answers to the nearest tenth.

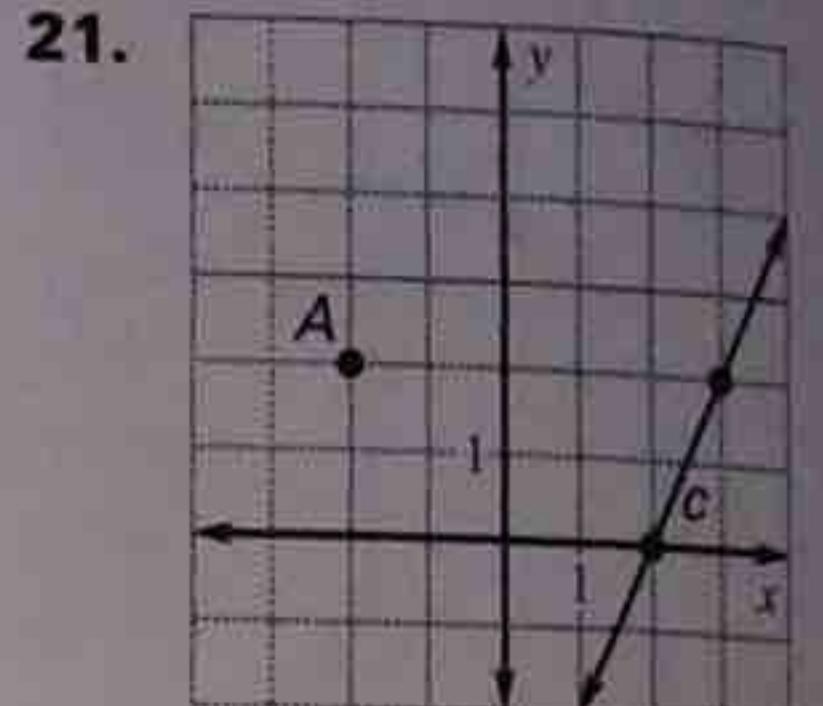
19.



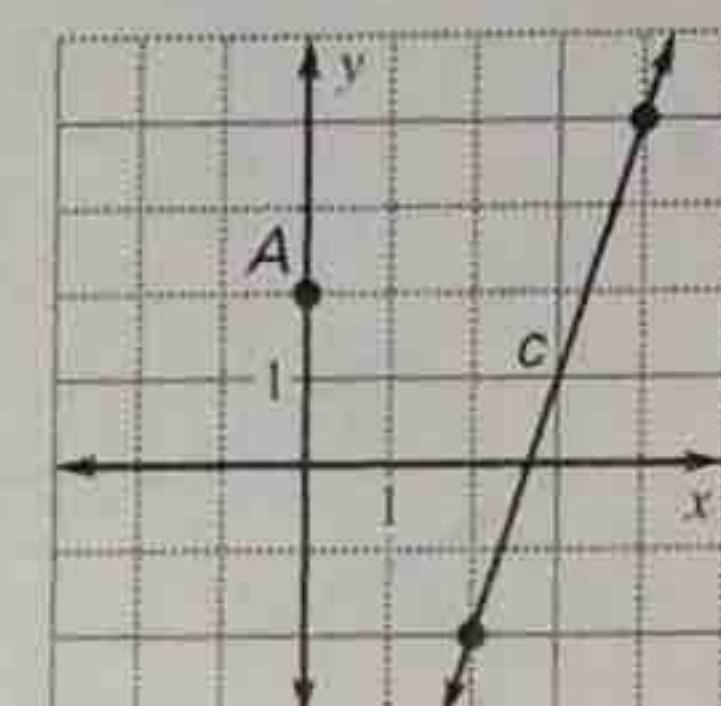
2.8



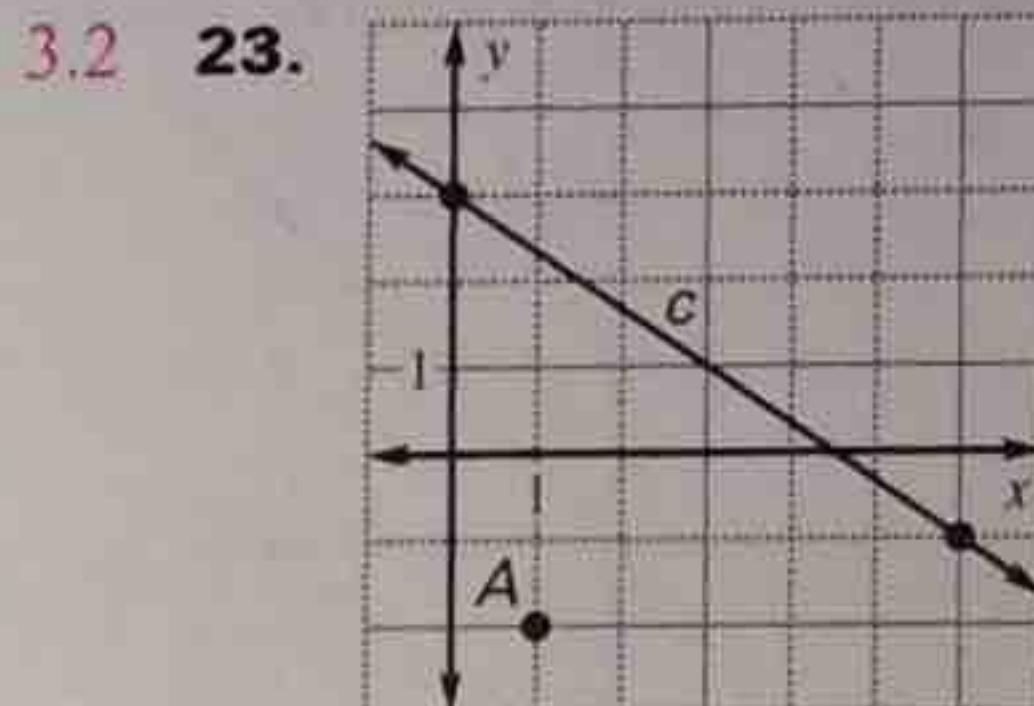
4.2



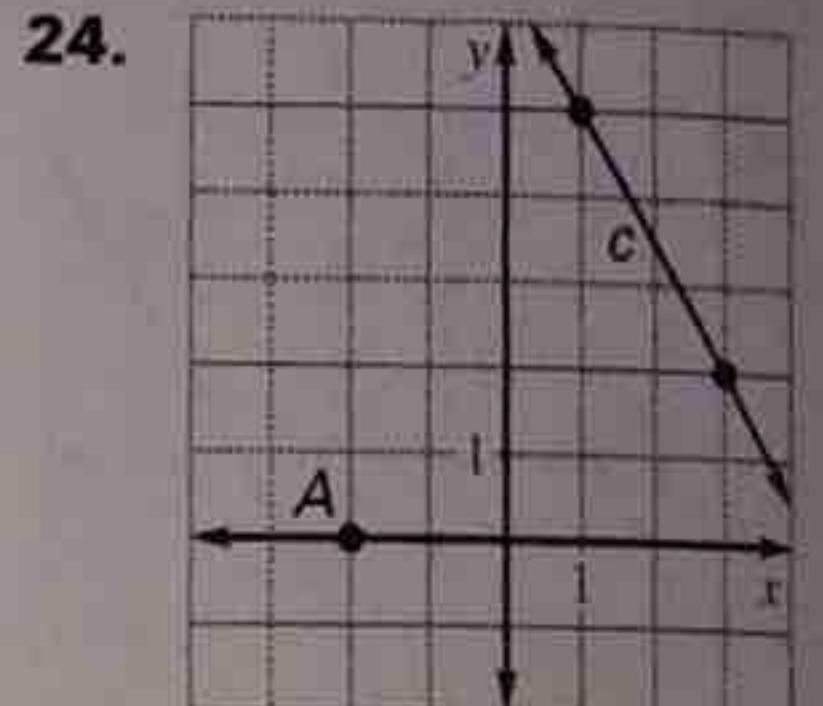
22.



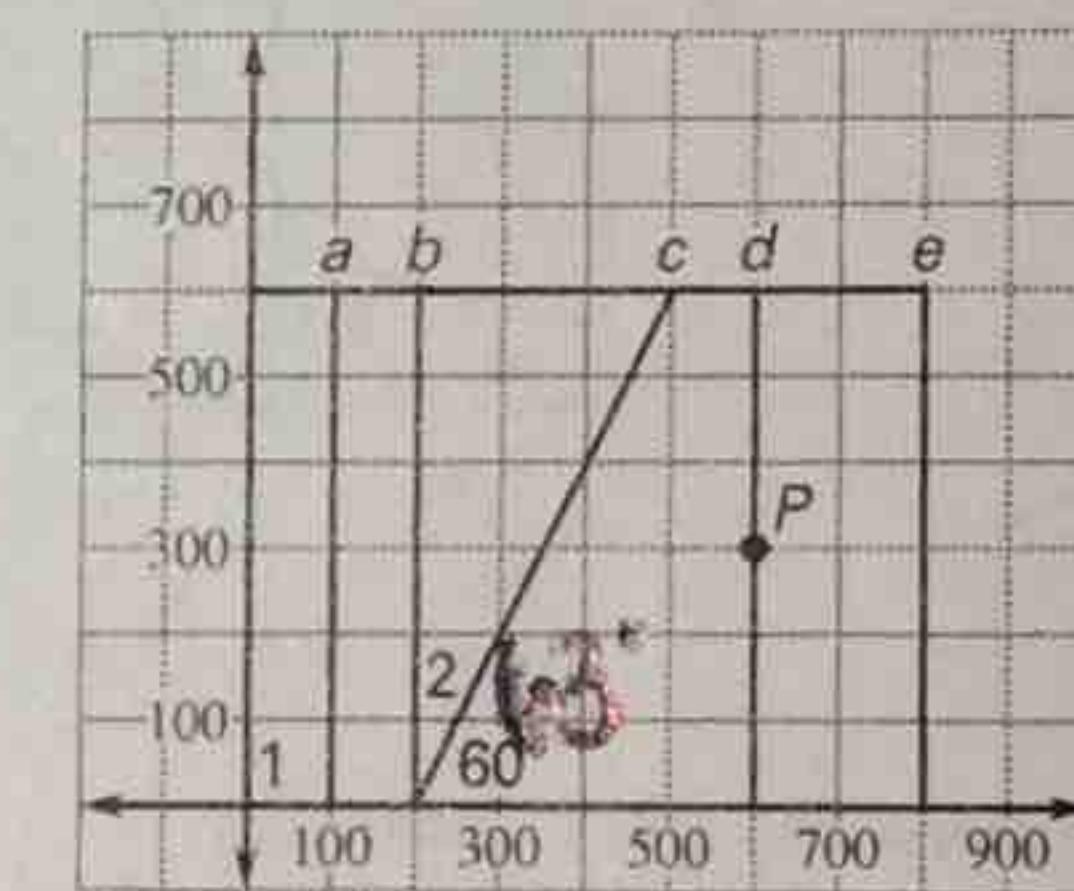
3.2



3.6



25. Maps A map of a neighborhood is drawn on a graph where units are measured in feet.



a. Find  $m\angle 1$ .  $90^\circ$

b. Find  $m\angle 2$ .  $30^\circ$

c. Find the distance from point  $P$  to line  $a$ .  $500$  ft

d. Find the distance from point  $P$  to line  $c$ . Round your answer to the nearest foot.  $224$  ft