Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Algebra 1 Chapter 05 Review

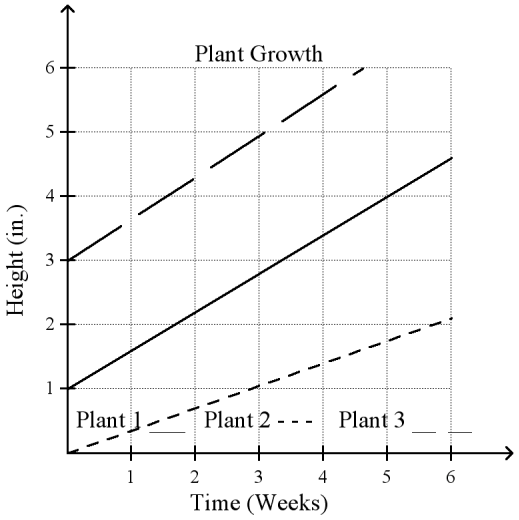
Multiple Choice
Identify the choice that best completes the statement or answers the question.

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

____ 1. (1, 7), (10, 1)
a. $\frac{3}{2}$ b. $-\frac{2}{3}$ c. $-\frac{3}{2}$ d. $\frac{2}{3}$

____ 2. A student finds the slope of the line between (14, 1) and (18, 17). She writes $\frac{1-17}{18-14}$. What mistake did she make?
a. She should have added the values, not subtracted them.
b. She used y-values where she should have used x-values.
c. She mixed up the x- and y-values.
d. She did not keep the order of the points the same in the numerator and the denominator.

____ 3.



Use the graph.
a. Which plant was the tallest at the beginning?
b. Which plant had the greatest rate of change over the 6 weeks?

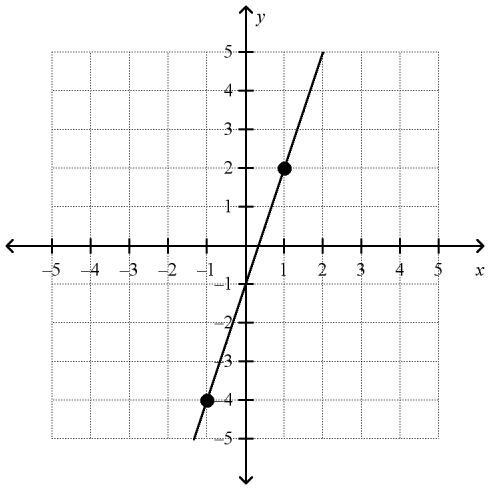
a. plant 2; plant 2
b. plant 1; plant 3
c. plant 3; plant 1
d. plant 3; plant 3

Write an equation of a line with the given slope and y-intercept.

____ 4. $m = 1$, $b = 4$
a. $y = 4x + 1$
b. $y = x - 4$
c. $y = -1x + 4$
d. $y = x + 4$

Write the slope-intercept form of the equation for the line.

____ 5.



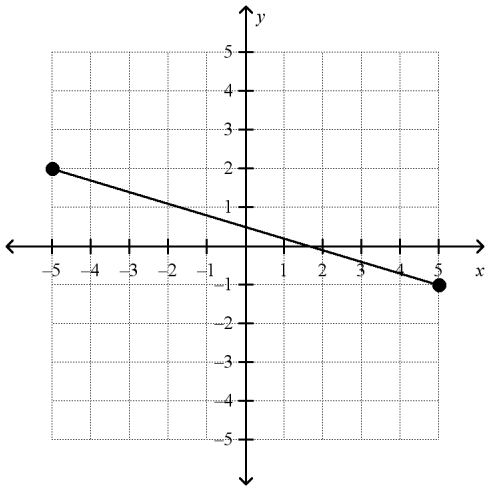
a. $y = 3x - 1$

b. $y = -3x - 1$

c. $y = \frac{1}{3}x + 1$

d. $y = \frac{1}{3}x - 1$

____ 6.



a. $y = -\frac{10}{3}x + \frac{1}{2}$

b. $y = \frac{3}{10}x + \frac{1}{2}$

c. $y = -\frac{3}{10}x + \frac{1}{2}$

d. $y = \frac{1}{2}x + \frac{3}{10}$

____ 7. Write an equation of a line that has the same slope as $2x - 5y = 12$ and the same y-intercept as $4y + 24 = 5x$.

a. $y = \frac{2}{5}x - 6$

b. $y = 6x - \frac{2}{5}$

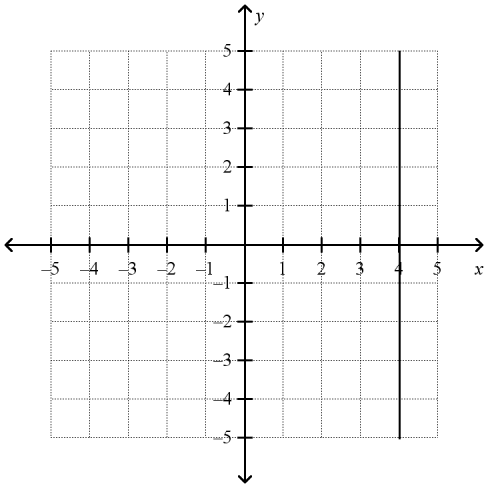
c. $y = \frac{5}{2}x - 6$

d. $y = \frac{1}{6}x - \frac{5}{2}$

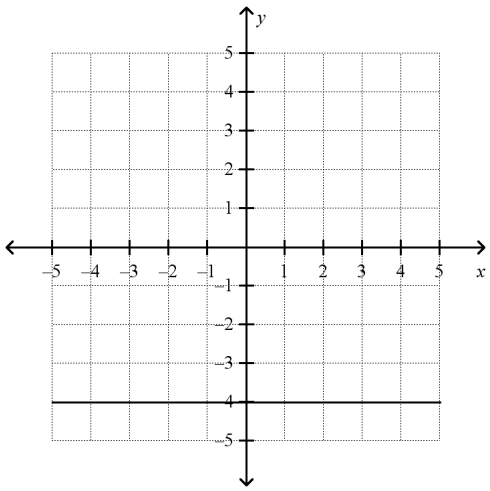
Graph the equation.

____ 8. $x = -4$

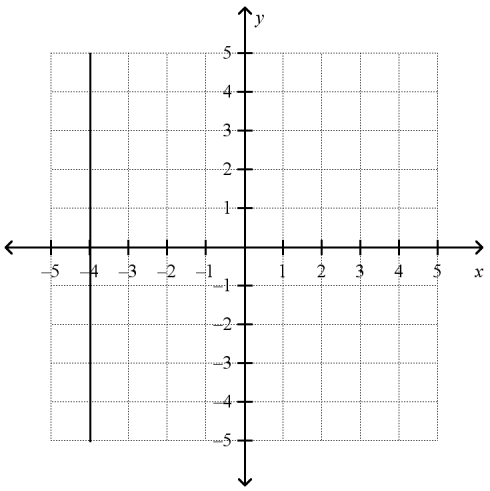
a.



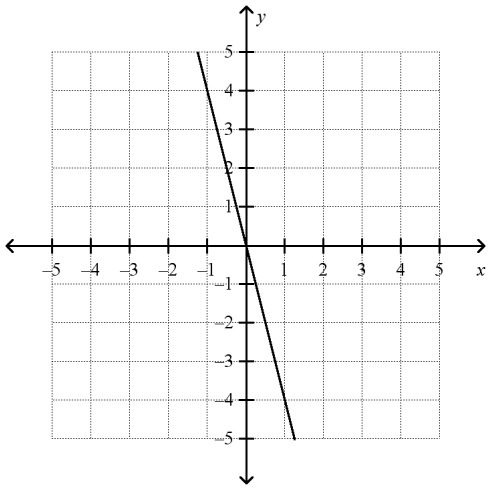
c.



b.

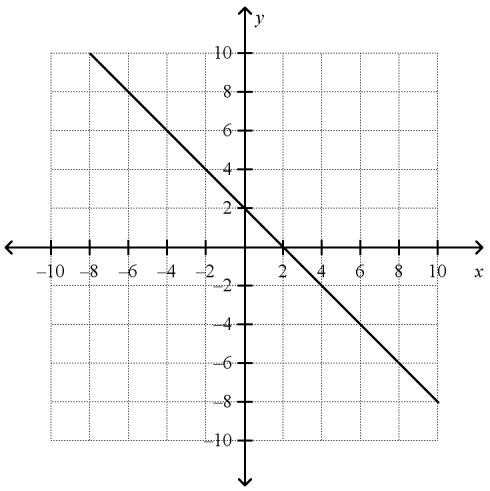


d.

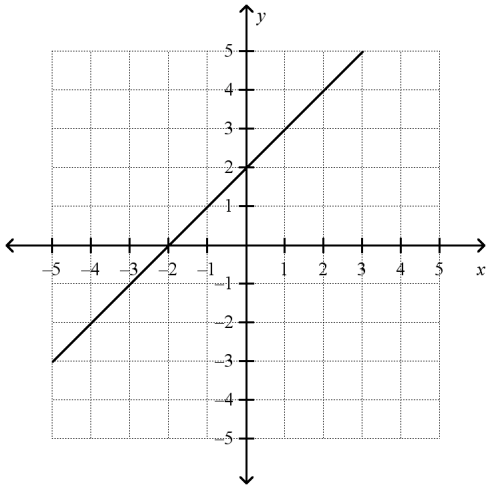


____ 9. $y + 2 = -(x - 4)$

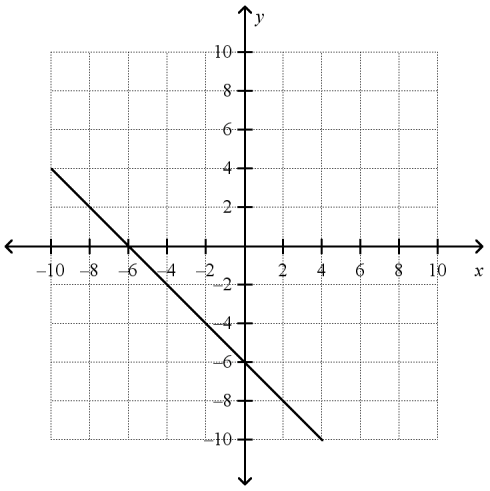
a.


y
x
10
8
6
4
2
−10 −8 −6 −4 −2 2 4 6 8 10
−2
−4
−6
−8
−10

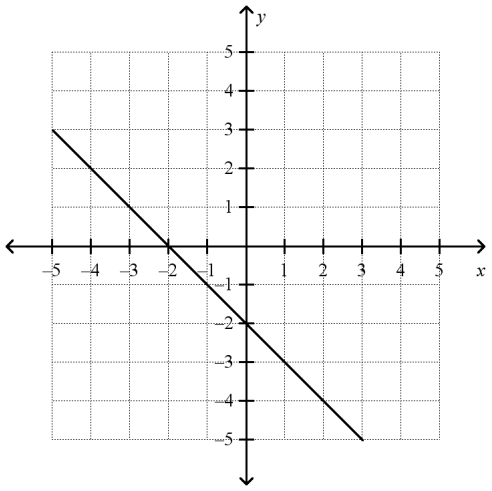
c.


y
x
5
4
3
2
1
−5 −4 −3 −2 −1 1 2 3 4 5
−1
−2
−3
−4
−5

b.

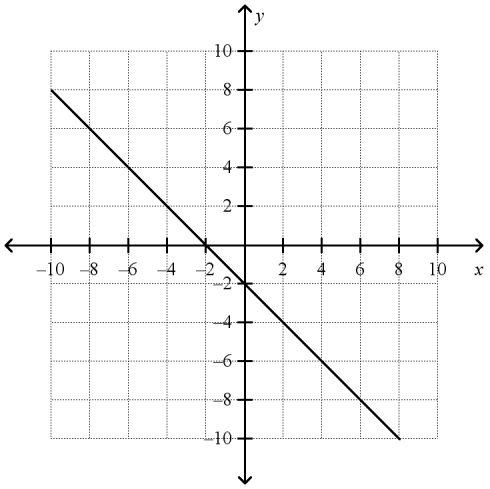

y
x
10
8
6
4
2
−10 −8 −6 −4 −2 2 4 6 8 10
−2
−4
−6
−8
−10

d.

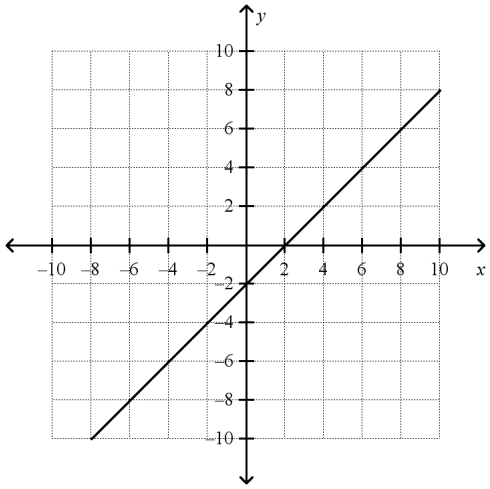

y
x
5
4
3
2
1
−5 −4 −3 −2 −1 1 2 3 4 5
−1
−2
−3
−4
−5

____ 10. $y - 3 = -(x + 5)$

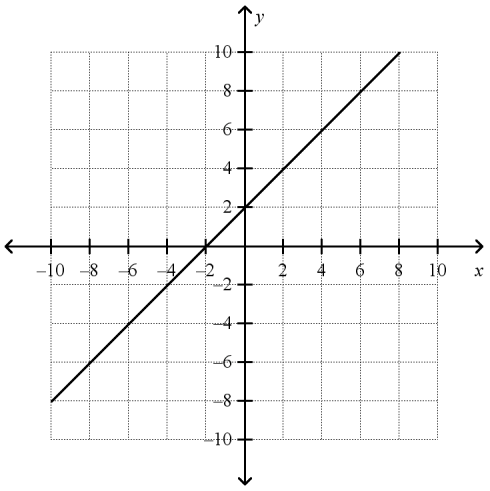
a.



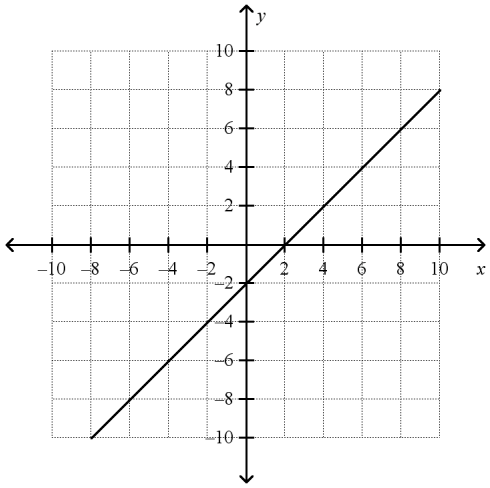
c.



b.



d.



Write an equation in point-slope form for the line through the given point with the given slope.

____ 11. $(4, -6)$; $m = \frac{3}{5}$

a. $y + 6 = \frac{3}{5}x - 4$

c. $y + 6 = \frac{3}{5}(x - 4)$

b. $y - 6 = \frac{3}{5}(x + 4)$

d. $y - 4 = \frac{3}{5}(x + 6)$

____ 12. $(10, -9)$; $m = -2$

a. $y - 10 = -2(x + 9)$

c. $y - 9 = -2(x - 10)$

b. $y - 9 = -2(x + 10)$

d. $y + 9 = -2(x - 10)$

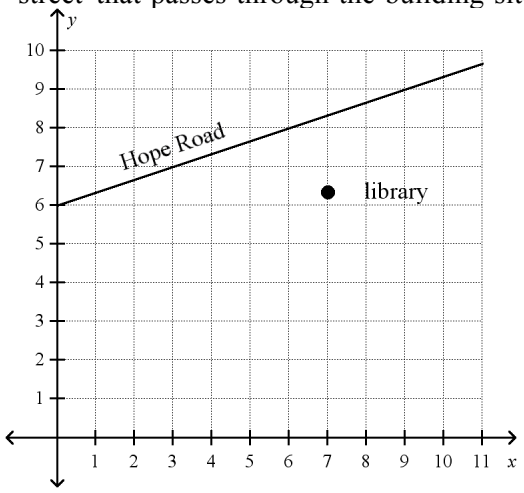
Are the graphs of the lines in the pair parallel? Explain.

____ 13. $y = \frac{1}{6}x + 8$

$-2x + 12y = -11$

a. Yes, since the slopes are the same and the y-intercepts are the same.
b. No, since the y-intercepts are different.
c. Yes, since the slopes are the same and the y-intercepts are different.
d. No, since the slopes are different.

____ 14. The map shows Hope Road and the construction site for the new library. Find the equation of a "street"that passes through the building site and is parallel to Hope Road.



a. $y = 3x + 4$

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

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

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

Write an equation for the line that is parallel to the given line and that passes through the given point.

____ 15. $y = -5x + 3$; $(-6, 3)$

a. $y = -5x + 27$
b. $y = -5x - 27$
c. $y = 5x - 9$
d. $y = -5x + 9$

Tell whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*.

____ 16. $7x - 4y = 4$

$x - 4y = 3$

a. perpendicular b. parallel c. neither

Write the equation of a line that is perpendicular to the given line and that passes through the given point.

____ 17. $4x - 12y = 2$; (10, –1)

a. $y = 3x + 29$
c. $y = -3x + 29$
b. $y = -\frac{1}{3}x + 29$
d. $y = -\frac{1}{3}x + 7$

____ 18. $y = \frac{2}{3}x + 9$; (–6, 5)

a. $y = -\frac{2}{3}x + 1$
c. $y = \frac{2}{3}x + 9$
b. $y = -\frac{3}{2}x + \frac{3}{2}$
d. $y = -\frac{3}{2}x - 4$

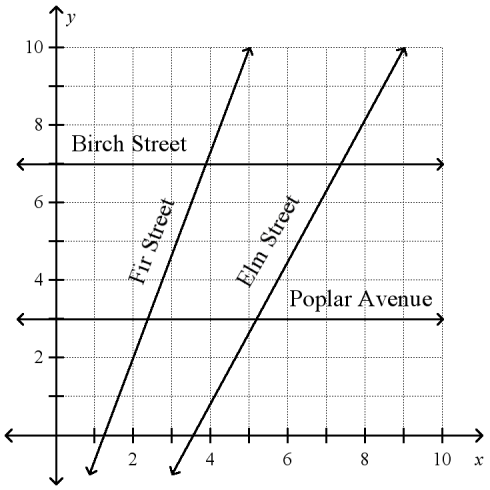
Short Answer

19. Suppose you have $20.00 to buy cold cuts for a class picnic. Ham costs $3.99 per pound and turkey costs $4.99 per pound. The equation $3.99x + 4.99y = 20$ models this situation. What does the x-intercept of the graph of the equation tell you about the amount of meat you can buy?

Essay

20. Write $y = \frac{5}{3}x - 11$ in standard form. Show your work. Justify each step.

21. Use the map to answer the following. Show your work.



a. What is the slope of the line representing Elm Street?
b. Show that Birch Street and Poplar Avenue are parallel.
c. Show that Fir Street is NOT perpendicular to Birch Street.

Algebra 1 Chapter 05 Review
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: L2 REF: 5-1 Rate of Change and Slope
   OBJ: 5-1.2 Finding Slope STA: CA A1 6.0 | CA A1 7.0 | CA A1 8.0
   TOP: 5-1 Example 4 KEY: finding slope using points | slope
2. ANS: D PTS: 1 DIF: L3 REF: 5-1 Rate of Change and Slope
   OBJ: 5-1.2 Finding Slope STA: CA A1 6.0 | CA A1 7.0 | CA A1 8.0
   TOP: 5-1 Example 4 KEY: slope | reasoning | error analysis
3. ANS: D PTS: 1 DIF: L3 REF: 5-1 Rate of Change and Slope
   OBJ: 5-1.1 Finding Rates of Change STA: CA A1 6.0 | CA A1 7.0 | CA A1 8.0
   TOP: 5-1 Example 2
   KEY: graphing | rate of change | problem solving | word problem | multi-part question
4. ANS: D PTS: 1 DIF: L2 REF: 5-2 Slope-Intercept Form
   OBJ: 5-2.1 Writing Linear Equations STA: CA A1 6.0 | CA A1 7.0
   TOP: 5-2 Example 2 KEY: linear equation | slope | y-intercept
5. ANS: A PTS: 1 DIF: L2 REF: 5-2 Slope-Intercept Form
   OBJ: 5-2.1 Writing Linear Equations STA: CA A1 6.0 | CA A1 7.0
   TOP: 5-2 Example 3
   KEY: graphing | slope | y-intercept | slope-intercept form | finding slope using a graph
6. ANS: C PTS: 1 DIF: L3 REF: 5-2 Slope-Intercept Form
   OBJ: 5-2.1 Writing Linear Equations STA: CA A1 6.0 | CA A1 7.0
   TOP: 5-2 Example 3
   KEY: graphing | slope | y-intercept | slope-intercept form | finding slope using a graph
7. ANS: A PTS: 1 DIF: L4 REF: 5-3 Standard Form
   OBJ: 5-3.2 Writing Equations in Standard Form STA: CA A1 6.0
   KEY: standard form of a linear equation
8. ANS: B PTS: 1 DIF: L2 REF: 5-3 Standard Form
   OBJ: 5-3.1 Graphing Equations Using Intercepts STA: CA A1 6.0
   TOP: 5-3 Example 3 KEY: graphing | horizontal and vertical lines
9. ANS: B PTS: 1 DIF: L2
   REF: 5-4 Point-Slope Form and Writing Linear Equations OBJ: 5-4.1 Using Point-Slope Form
   STA: CA A1 6.0 | CA A1 7.0 TOP: 5-4 Example 1
   KEY: point-slope form | graphing | linear equation
10. ANS: A PTS: 1 DIF: L2
    REF: 5-4 Point-Slope Form and Writing Linear Equations OBJ: 5-4.1 Using Point-Slope Form
    STA: CA A1 6.0 | CA A1 7.0 TOP: 5-4 Example 1
    KEY: point-slope form | graphing | linear equation
11. ANS: C PTS: 1 DIF: L2
    REF: 5-4 Point-Slope Form and Writing Linear Equations OBJ: 5-4.1 Using Point-Slope Form
    STA: CA A1 6.0 | CA A1 7.0 TOP: 5-4 Example 2
    KEY: slope-intercept form | linear equation

12. ANS: D PTS: 1 DIF: L2
REF: 5-4 Point-Slope Form and Writing Linear Equations OBJ: 5-4.1 Using Point-Slope Form
STA: CA A1 6.0 | CA A1 7.0 TOP: 5-4 Example 2
KEY: slope-intercept form | linear equation
13. ANS: C PTS: 1 DIF: L2
REF: 5-5 Parallel and Perpendicular Lines OBJ: 5-5.1 Parallel Lines
STA: CA A1 7.0 | CA A1 8.0 TOP: 5-5 Example 1
KEY: parallel lines | slope
14. ANS: D PTS: 1 DIF: L3
REF: 5-5 Parallel and Perpendicular Lines OBJ: 5-5.1 Parallel Lines
STA: CA A1 7.0 | CA A1 8.0 TOP: 5-5 Example 2
KEY: parallel lines | problem solving | word problem
15. ANS: B PTS: 1 DIF: L2
REF: 5-5 Parallel and Perpendicular Lines OBJ: 5-5.1 Parallel Lines
STA: CA A1 7.0 | CA A1 8.0 TOP: 5-5 Example 2
KEY: parallel lines | linear equation
16. ANS: C PTS: 1 DIF: L3
REF: 5-5 Parallel and Perpendicular Lines OBJ: 5-5.2 Perpendicular Lines
STA: CA A1 7.0 | CA A1 8.0 TOP: 5-5 Example 3
KEY: perpendicular lines | parallel lines
17. ANS: C PTS: 1 DIF: L2
REF: 5-5 Parallel and Perpendicular Lines OBJ: 5-5.2 Perpendicular Lines
STA: CA A1 7.0 | CA A1 8.0 TOP: 5-5 Example 3
KEY: perpendicular lines | linear equation
18. ANS: D PTS: 1 DIF: L2
REF: 5-5 Parallel and Perpendicular Lines OBJ: 5-5.2 Perpendicular Lines
STA: CA A1 7.0 | CA A1 8.0 TOP: 5-5 Example 3
KEY: perpendicular lines | linear equation

SHORT ANSWER

19. ANS:
The *x*-intercept tell you the amount of ham you can buy if you do not buy any turkey.

PTS: 1 DIF: L3 REF: 5-3 Standard Form
OBJ: 5-3.1 Graphing Equations Using Intercepts STA: CA A1 6.0
KEY: standard form of a linear equation | x-intercept | y-intercept | problem solving | word problem

ESSAY

20. ANS:

[4] $y = \frac{5}{3}x - 11$

$3y = 3\left(\frac{5}{3}x - 11\right)$ Multiply each side by 3.

$3y = 5x - 33$ Use the Distributive Property.

$-5x + 3y = -33$ Subtract $5x$ from each side.

[3] correct steps with no justification OR one computational error
[2] more than one computational error
[1] more than one computational error and no justification

PTS: 1 DIF: L3 REF: 5-3 Standard Form
OBJ: 5-3.2 Writing Equations in Standard Form STA: CA A1 6.0
TOP: 5-3 Example 4
KEY: essay | transforming equations | rubric-based question | extended response

21. ANS:

[4] a. Elm: (4,1), (8, 8); $m = \frac{8-1}{8-4} = \frac{7}{4}$

b. Birch: (10, 7), (1, 7); $m = \frac{7-7}{10-1} = \frac{0}{9} = 0$

Poplar: (10, 3), (1, 3); $m = \frac{3-3}{10-1} = \frac{0}{9} = 0$

Birch Street and Poplar Avenue both have a slope of 0, so they are parallel.

c. Fir: (5, 10), (2, 2); $m = \frac{10-2}{5-2} = \frac{8}{3}$

Birch has a slope of 0, so it is horizontal. To be perpendicular, Fir would have to be vertical, but it has a slope of $\frac{8}{3}$ so it is not perpendicular to Birch.

[3] two parts correct
[2] one part correct with computational errors in the other parts OR missing explanations
[1] more than two computational errors OR one computation error and missing explanations

PTS: 1 DIF: L3 REF: 5-5 Parallel and Perpendicular Lines
OBJ: 5-5.2 Perpendicular Lines STA: CA A1 7.0 | CA A1 8.0
TOP: 5-5 Example 4
KEY: parallel lines | perpendicular lines | graphing | problem solving | word problem | extended response | rubric-based question