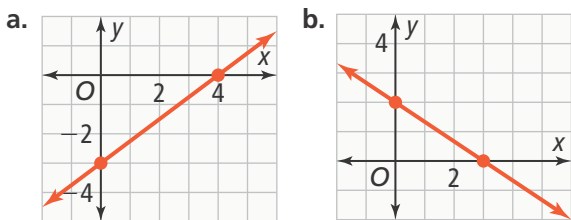




UNDERSTAND

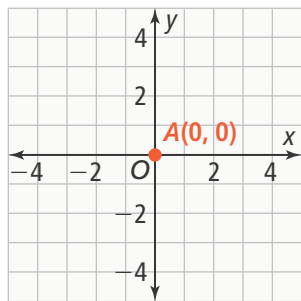
10. **Use Structure** If $C = 24$, what values of A and B complete $Ax + By = C$ for each graph? Write the standard form for each equation.



11. **Construct Arguments** Darren graphs the linear equations $y = -\frac{2}{5}x + 3$ and $2x + 5y = 15$. The graphs look identical so he believes that the equations represent the same line. What mathematical argument can he construct to show that the two forms are equivalent?
12. **Error Analysis** Describe and correct the error a student made finding the intercepts of the graph of the line $4x - 6y = 12$.

1. $4(0) - 6y = 12$
2. $6y = 12$, so $y = 2$; the y -intercept is 2.
3. $4x - 6(0) = 12$
4. $4x = 12$, so $x = 3$; the x -intercept is 3. X

13. **Mathematical Connections** Point A is one vertex of triangle ABC . Point B is the x -intercept of $6x - 4y = -12$ and point C is the y -intercept. What are points B and C ? Sketch the triangle in the coordinate plane.



14. **Higher Order Thinking** Consider the line represented by the equation $5x + 2y = 10$. How is the slope of the line related to values of A , B , and C in standard form $Ax + By = C$?

PRACTICE

Identify the x - and y -intercepts of the graph of each equation. SEE EXAMPLES 1 AND 2

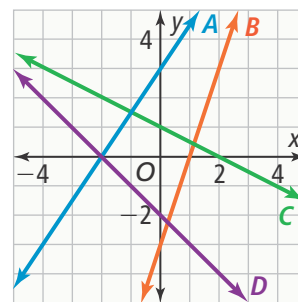
15. $2x + 5y = 10$ 16. $3x - 4y = -24$
17. $10x + 5y = 120$ 18. $2x - y = 8$

Sketch the graph of each equation. SEE EXAMPLE 2

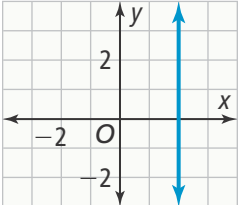
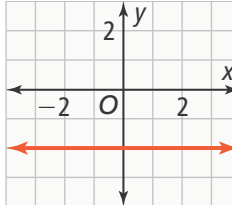
19. $2x - 4y = 8$ 20. $3x + 5y = 15$
21. $3x - 6y = -12$ 22. $8x + 12y = -24$

Which line matches each equation? SEE EXAMPLE 2

23. $4x + 4y = -8$
24. $3x - 2y = -6$
25. $x + 2y = 2$
26. $3x - y = 3$



How is the graph of each equation related to standard form $Ax + By = C$? SEE EXAMPLE 3

27.  28. 

Sketch the graph of each equation. SEE EXAMPLE 3

29. $4x = 10$ 30. $-6y = 3$
31. $3y = -15$ 32. $-9x = -27$

Write each equation in standard form.

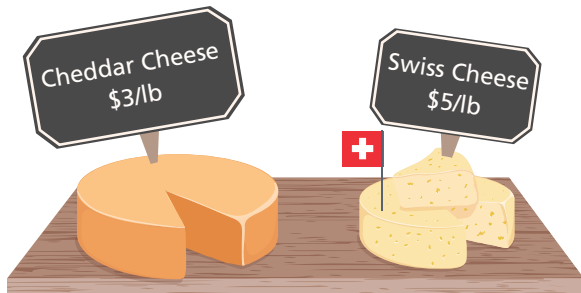
33. $y = 4x - 18$ 34. $y = 2x + \frac{3}{7}$
35. $y = -\frac{1}{2}x - 10$ 36. $y - 1 = \frac{2}{3}(x + 6)$

Write an equation in standard form of the line that passes through the given points.

37. $(0, 2)$ and $(8, 0)$ 38. $(6, 0)$ and $(0, 4)$
39. $(3, 0)$ and $(0, -7)$ 40. $(2, -3)$ and $(2, 9)$

APPLY

41. Model With Mathematics Keisha is catering a luncheon. She has \$30 to spend on a mixture of Cheddar cheese and Swiss cheese. How many pounds of cheese can Keisha get if she buys only Cheddar cheese? Only Swiss cheese? A mixture of both cheeses? What linear equation in standard form can she use to model the situation?



42. Model With Mathematics Gregory can buy 4 pounds of wheat flour for \$8 and 5 pounds of rye flour for \$20. He has \$12 to spend on a flour mixture. What linear equation in standard form can Gregory use to model the situation?

43. Make Sense and Persevere Paxton, a summer camp counselor, has a budget of \$300 to spend on caps and T-shirts for a summer camp.



What equation can Paxton use to determine the number of caps and T-shirts he can order for \$300? If Paxton sketched a graph of the linear equation, would every point on the graph represent a possible solution? Explain.

ASSESSMENT PRACTICE

44. Which of the following equations has the same graph as $2x + 3y = 12$? Select all that apply.

- (A) $y = -\frac{2}{3}x + 4$
- (B) $x + \frac{3}{2}y = 6$
- (C) $y - 2 = -\frac{2}{3}(x - 3)$
- (D) $-2x - 3y = -12$
- (E) $y - 2 = -\frac{2}{3}x + 4$

45. SAT/ACT What is $\frac{3}{8}x + \frac{2}{3}y = 5$ written in standard form?

- (A) $y = -\frac{9}{16}x + \frac{15}{2}$
- (B) $y + \frac{3}{2} = -\frac{9}{16}(x - 16)$
- (C) $\frac{3}{8}x + \frac{2}{3}y = 5$
- (D) $3x + \frac{16}{3}y = 40$
- (E) $9x + 16y = 120$

46. Performance Task Fatima has a total of \$8 to spend to make fruit smoothies. She will use two types of fruit. The table shows the cost of each type of fruit per cup.

Fruit	Cost per cup (\$)
Mango	0.50
Pineapple	0.75
Strawberry	1.00

Part A What are the possible combinations of ingredients that Fatima can buy? Write a linear equation in standard form to model how many cups of fruit she can buy for each possible mixture.

Part B What are the possible amounts of fruit, in cups, that she can buy for each mixture in Part A?

Part C Fatima will add 1 cup of liquid for every cup of fruit to complete the smoothies. If she needs at least 24 cups of smoothies, which mixtures will allow her to make enough and still stay within her budget? Explain your reasoning.