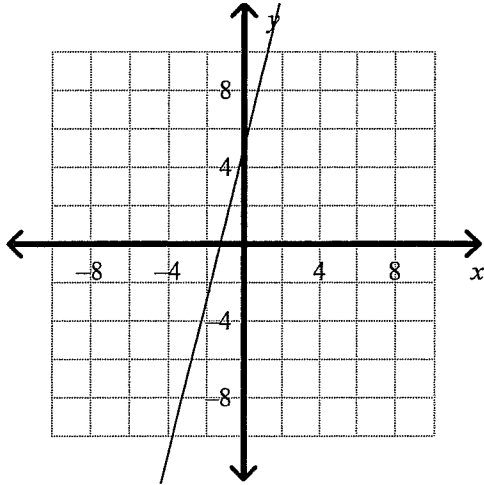


2015 Algebra 2A - Final Exam Review

Multiple Choice

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

What is an equation of the line in slope intercept form?



- _____ 1.
- | | |
|-----------------|------------------|
| a. $y = 5x + 4$ | c. $y = -5x + 4$ |
| b. $y = 4x + 5$ | d. $y = 4x - 5$ |

Write an equation of the line, in point-slope form, that passes through the two given points.

- _____ 2. points: $(-3, 13)$, $(9, -11)$
- | | |
|-----------------------------------|-----------------------------------|
| a. $y - 13 = -2(x + 3)$ | c. $y - 3 = -2(x - 13)$ |
| b. $y - 13 = -\frac{1}{2}(x + 3)$ | d. $y - 3 = -\frac{1}{2}(x + 13)$ |

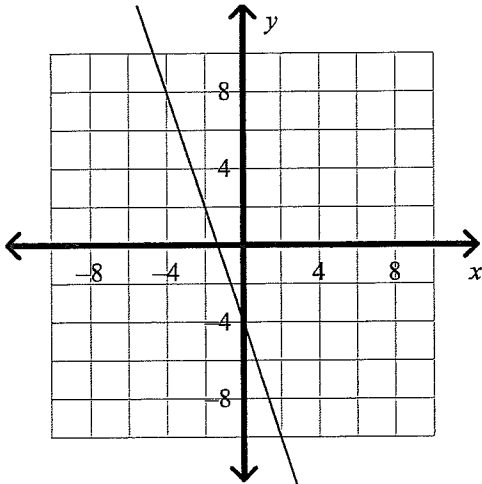
What is an equation of the line, in point-slope form, that passes through the given point and has the given slope?

- _____ 3. point: $(4, -5)$; slope: 3
- | | |
|-----------------------|-----------------------|
| a. $y - 5 = 3(x - 4)$ | c. $y - 5 = 3(x + 4)$ |
| b. $y + 5 = 3(x - 4)$ | d. $y + 5 = 3(x + 4)$ |

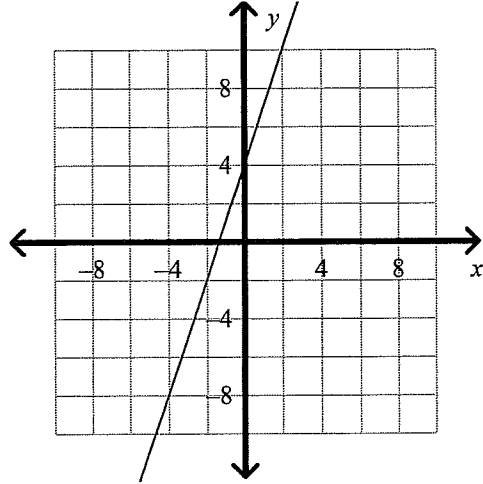
What is the graph of the equation?

4. $-3x - 2y = 4$

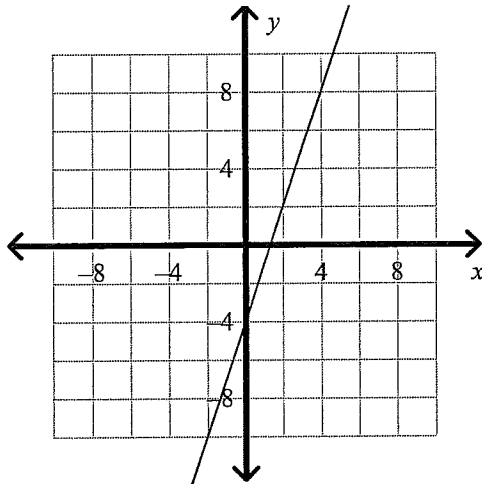
a.



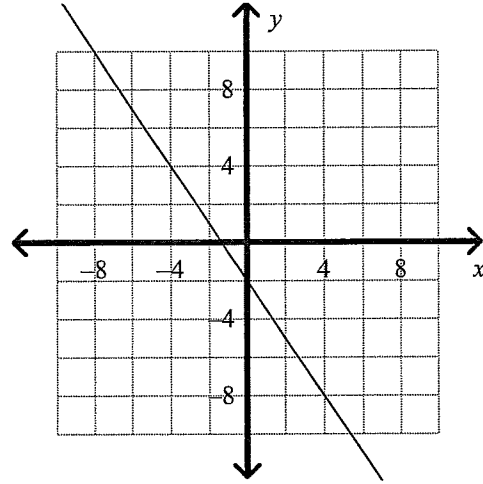
c.



b.



d.



What is the equation of the given line in standard form? Use integer coefficients.

5. $y = \frac{5}{4}x - 5$

a. $-5x - 4y = -20$

c. $-5x + 4y = -5$

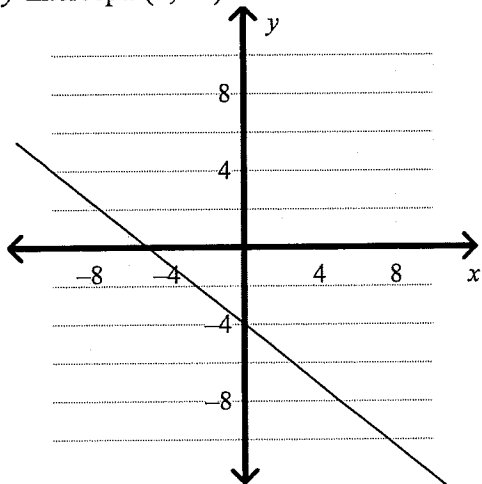
b. $5x + 4y = -20$

d. $-5x + 4y = -20$

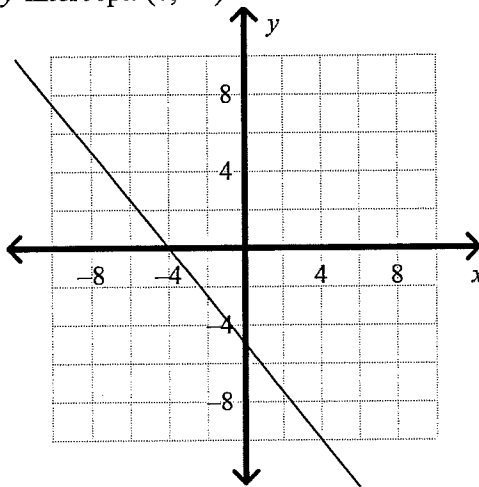
What are the intercepts of the equation? Graph the equation.

6. $-5x - 4y = 20$

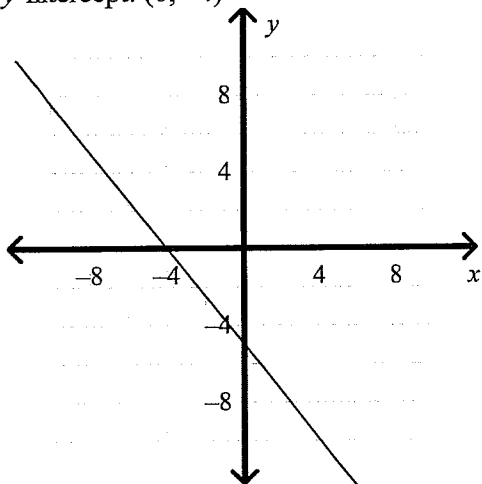
- a. x -intercept: $(-4, 0)$
 y -intercept: $(0, -5)$



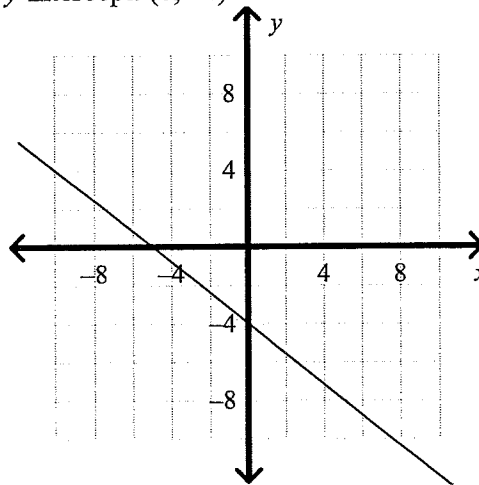
- c. x -intercept: $(-4, 0)$
 y -intercept: $(0, -5)$



- b. x -intercept: $(-5, 0)$
 y -intercept: $(0, -4)$

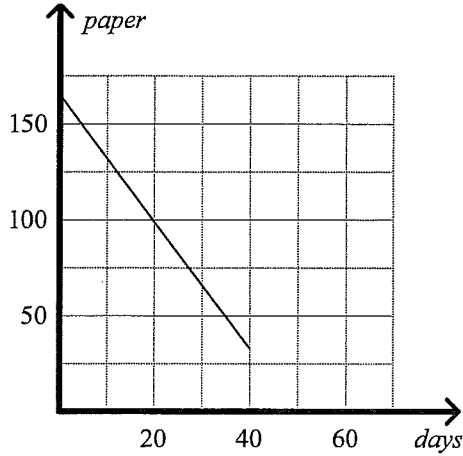


- d. x -intercept: $(-5, 0)$
 y -intercept: $(0, -4)$

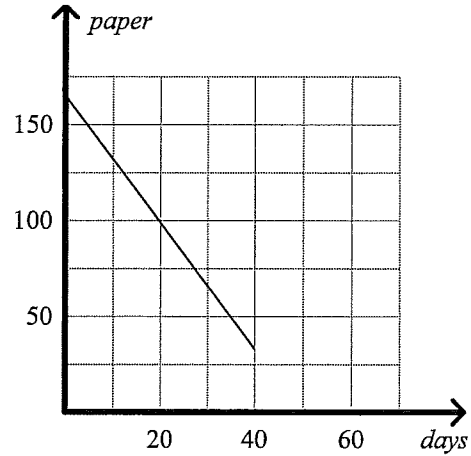


7. The office manager of a small office ordered 165 packs of printer paper. Based on average daily use, she knows that the paper will last about 50 days. What graph represents this situation? How many packs of printer paper should the manager expect to have after 20 days?

a.

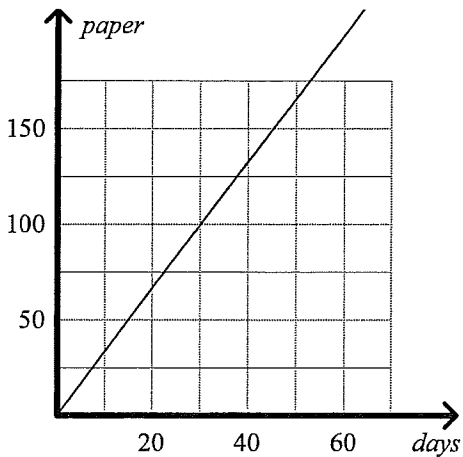


c.



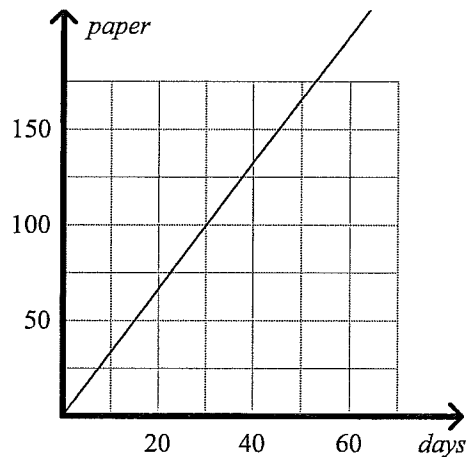
99 packs

b.



66 packs

d.



66 packs

99 packs

What is the equation of the line in slope-intercept form?

8. the line parallel to $y = -3x + 4$ through $(5, 8)$

a. $y = \frac{1}{3}x + 23$

c. $y = -3x + 23$

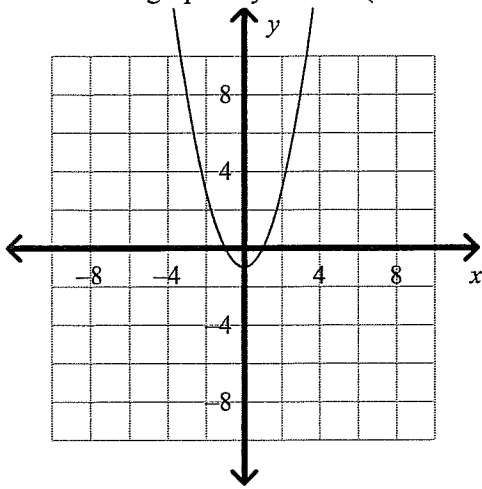
b. $y = -3x + 7$

d. $y = 3x + 23$

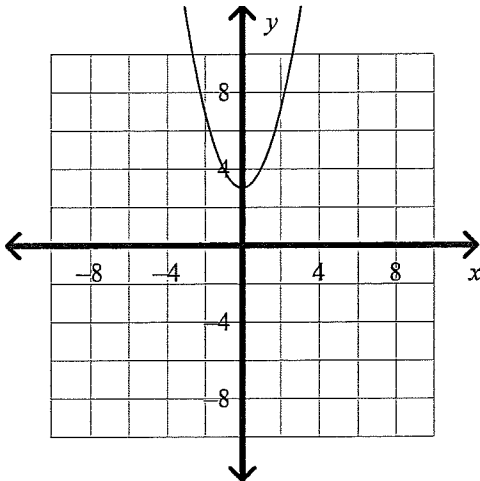
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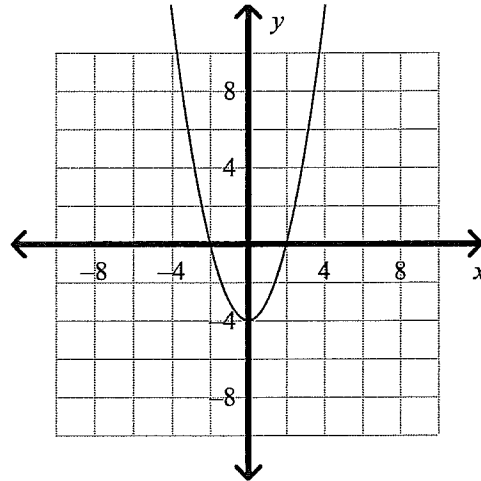
11. What is the graph of $y = x - 1$ (shown below) translated up 3 units?



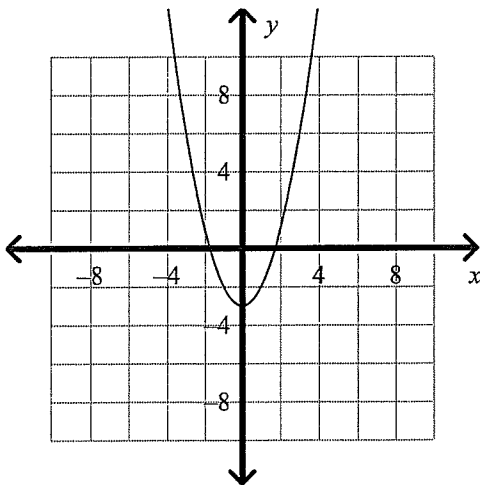
a.



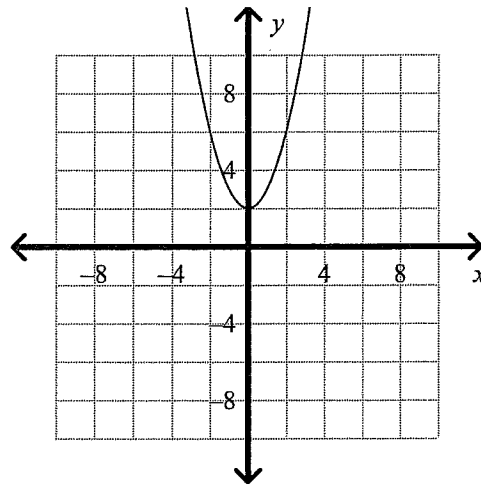
c.



b.



d.



What is the number of real solutions?

_____ 12. $-3x^2 + 2x - 1 = 0$

- a. two solutions
b. no real solutions
c. cannot be determined
d. one solution

Short Answer

Solve by graphing.

1. $x^2 - 7x + 10 = 0$

2. $x^2 - 2x - 15 = 0$

Find the function rule for $g(x)$.

3. The function $f(x) = x^2$. The graph of $g(x)$ is $f(x)$ translated to the left 4 units and up 8 units. What is the function rule for $g(x)$?

What transformations change the graph of $f(x)$ to the graph of $g(x)$?

4. $f(x) = x^2$; $g(x) = (x + 3)^2 - 4$

Let $g(x)$ be the reflection of $f(x)$ in the x -axis. What is the function rule for $g(x)$?

5. Let $g(x)$ be the reflection of $f(x) = x^2 + 3$ in the x -axis. What is a function rule for $g(x)$?

What is the graph of the absolute value equation?

6. $y = |x| - 2$

7. $y = |x - 4| - 1$

8. Which of the following describes the translation of $y = |x|$ to $y = |x + 7| - 2$?

9. Let $f(x) = -3x + 2$ and $g(x) = 5x - 6$. Find $f(x) + g(x)$.

10. Let $f(x) = 6x + 4$ and $g(x) = -5x + 7$. Find $f(x) - g(x)$.

11. Let $f(x) = x - 3$ and $g(x) = x^2$. Find $(g \circ f)(-5)$.

12. Let $f(x) = 3x - 6$ and $g(x) = x - 2$. Find $\frac{f}{g}$ and its domain.

What is the inverse of the given relation?

13. $y = 2x - 2$

Use matrices A , B , and C . Find the sum or difference if you can.

$$A = \begin{bmatrix} -5 & 4 \\ -8 & 2 \end{bmatrix} \quad B = \begin{bmatrix} -2 & 7 & -3 \\ 1 & -6 & 0 \end{bmatrix} \quad C = \begin{bmatrix} 5 & 3 & -1 \\ -3 & 0 & 6 \end{bmatrix}$$

14. $C + A$

15. $\begin{bmatrix} -7 & -1 & 7 \\ 0 & 9 & 2 \end{bmatrix} + \begin{bmatrix} -2 & 0 & -6 \\ -2 & 5 & -1 \end{bmatrix}$

Find the values of the variables.

16. $\begin{bmatrix} 2 + t & 0 \\ 8 & -17 \end{bmatrix} = \begin{bmatrix} -5 & 0 \\ 8 & -5y - 2 \end{bmatrix}$

Find the product.

17. $\begin{bmatrix} 0 & 3 \\ 3 & -8 \end{bmatrix} \begin{bmatrix} 3 & 6 \\ 5 & 6 \end{bmatrix}$

Determine whether the product is defined or undefined. If defined, give the dimensions of the product matrix.

18. $\begin{bmatrix} 4 & 5 \\ 9 & -2 \end{bmatrix} \begin{bmatrix} 1 & 7 \end{bmatrix}$

Evaluate the determinant of the matrix.

19. $\begin{bmatrix} -11 & 5 \\ 2 & 9 \end{bmatrix}$

Does the given matrix, A , have an inverse? If it does, what is A^{-1} ?

20. $A = \begin{bmatrix} 5 & -18 \\ 2 & -7 \end{bmatrix}$

21.

Write the system $\begin{cases} 8y + 3z = 3 \\ 3x - 7y = 6 \\ 9x - 4z = 0 \end{cases}$ as a matrix equation.

What is the solution of the system? Solve using matrices.

22.
$$\begin{cases} x + 2y = 5 \\ x + y = 1 \end{cases}$$

23.
$$\begin{cases} 3x + 2y = 8 \\ 2x + y = 1 \end{cases}$$

What are the vertex and the axis of symmetry of the equation?

24. $y = -2x^2 + 28x - 4$

What is the maximum or minimum value of the function? What is the range?

25. $y = 2x^2 + 24x - 10$

What is the vertex form of the equation?

26. $y = x^2 + 8x - 10$

What is the expression in factored form?

27. $x^2 + 9x + 14$

28. $x^2 - 15x + 54$

What is the expression in factored form?

29. $-20x^2 - 8x$

30. $5x^2 + 25x + 30$

What are the solutions of the quadratic equation?

31. $x^2 - 14x + 48 = 0$

Solve by using tables. Give each answer to at most two decimal places.

32. $-3x^2 - 4 = -7x$

What is the solution of each equation?

33. $6x^2 = 66$

Solve the equation.

34. $x^2 + 14x + 49 = 64$

Use the Quadratic Formula to solve the equation.

35. $3x^2 - 8x + 4 = 0$

36. $-3x^2 + 5x + 3 = 0$

Simplify the number using the imaginary unit i .

37. $\sqrt{-144}$

Simplify the expression.

38. $(3 + 2i) + (1 - i)$

39. $(3 - 2i) - (1 - i)$

40. $(2i)(3i)$

41. $(6 - 3i)(4 + 6i)$

42. $\frac{-5 + 5i}{-5 + 6i}$

Graph the exponential function.

43. $y = 5^x$

44. $y = 5(3)^x$

45. Suppose you invest \$1300 at an annual interest rate of 7.3% compounded continuously. How much will you have in the account after 15 years?

Write the equation in logarithmic form.

46. $6^3 = 216$

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Write the equation in exponential form.

47. $\log_4 \frac{1}{16} = -2$

Evaluate the logarithm.

48. $\log_3 9$

