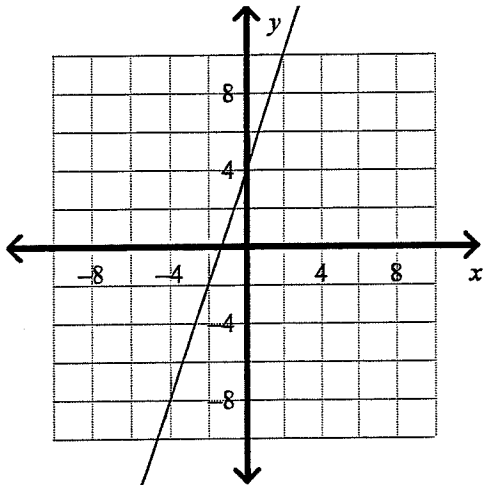


2015 Algebra 2A - Midterm Review**Multiple Choice***Identify the choice that best completes the statement or answers the question.***What is an equation of the line in slope intercept form?**

- _____ 1.
- | | |
|------------------|-----------------|
| a. $y = 3x + 4$ | c. $y = 4x + 3$ |
| b. $y = -4x + 3$ | d. $y = 3x - 4$ |

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

- _____ 2. points: $(-6, 12)$, $(3, -15)$
- | | |
|-----------------------------------|-----------------------------------|
| a. $y - 12 = -3(x + 6)$ | c. $y - 12 = -\frac{1}{3}(x + 6)$ |
| b. $y - 6 = -\frac{1}{3}(x + 12)$ | d. $y - 6 = -3(x - 12)$ |

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. $y - 5 = 3(x - 4)$ |

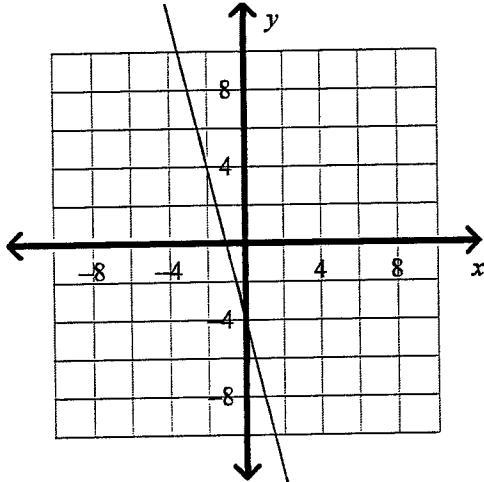
Name: _____

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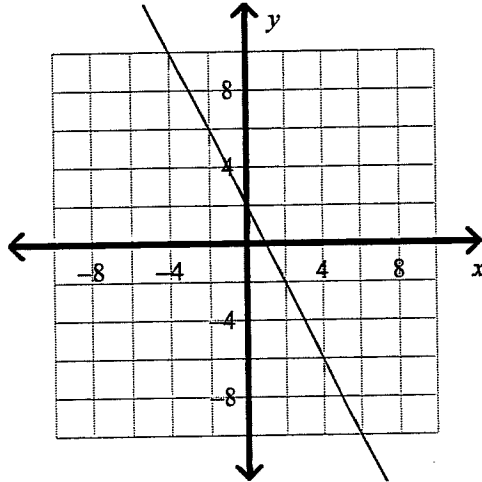
What is the graph of the equation?

_____ 4. $4x + 2y = 4$

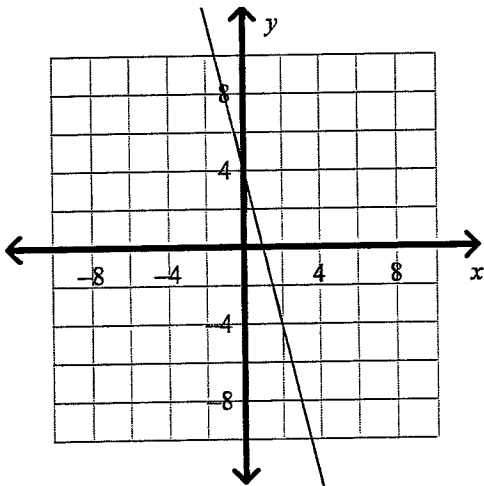
a.



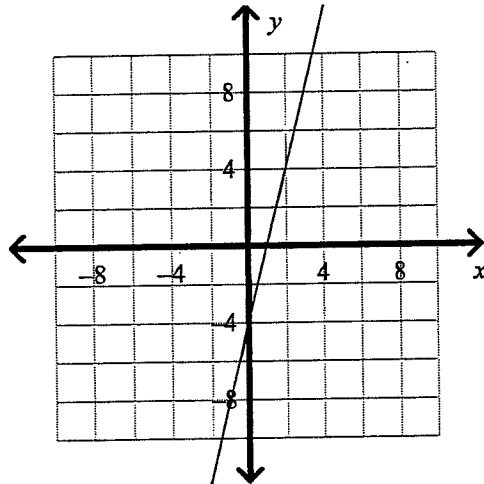
c.



b.



d.



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

_____ 5. $y = \frac{5}{8}x - 5$

a. $-5x + 8y = -40$

b. $5x + 8y = -40$

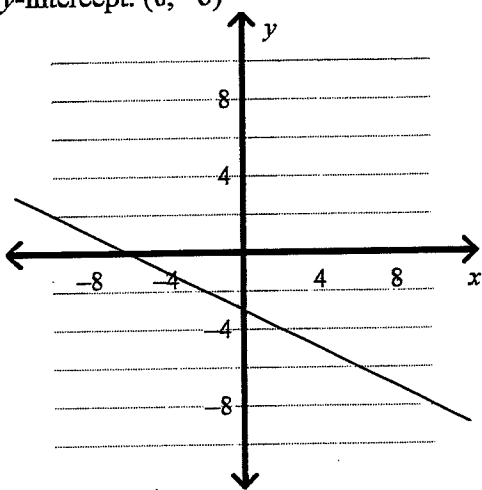
c. $-5x - 8y = -40$

d. $-5x + 8y = -5$

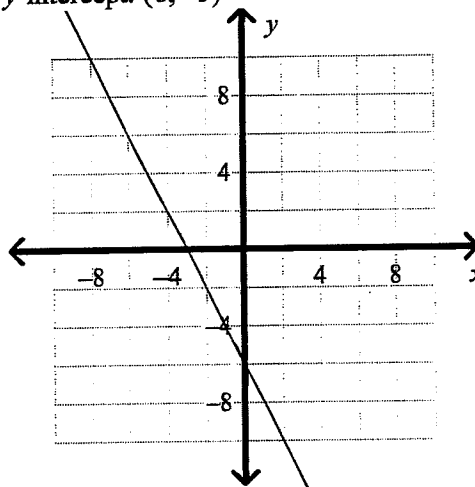
What are the intercepts of the equation? Graph the equation.

6. $-3x - 6y = 18$

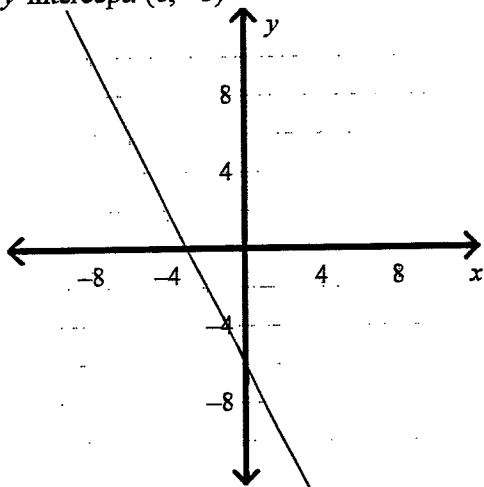
- a. x -intercept: $(-3, 0)$
 y -intercept: $(0, -6)$



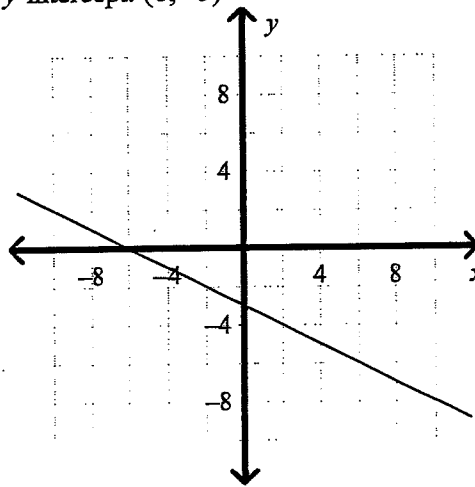
- c. x -intercept: $(-6, 0)$
 y -intercept: $(0, -3)$



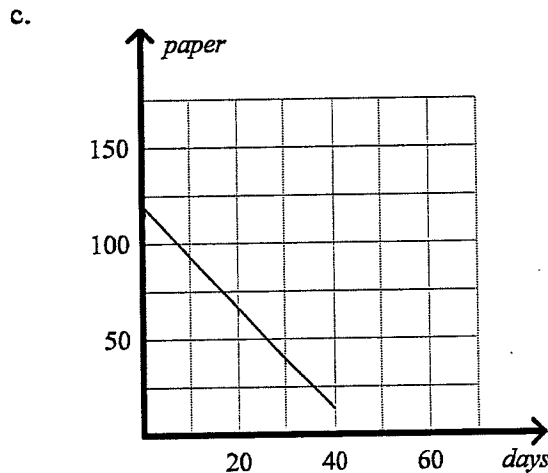
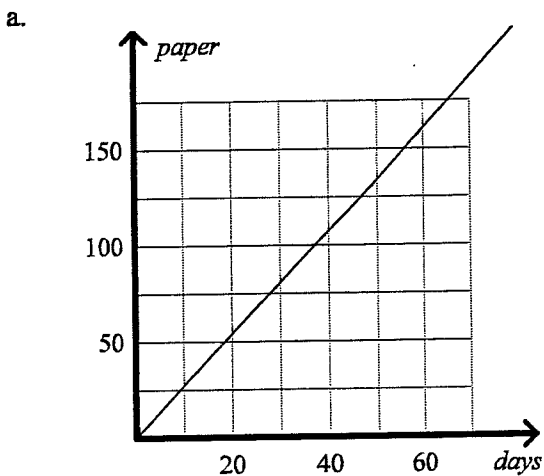
- b. x -intercept: $(-3, 0)$
 y -intercept: $(0, -6)$



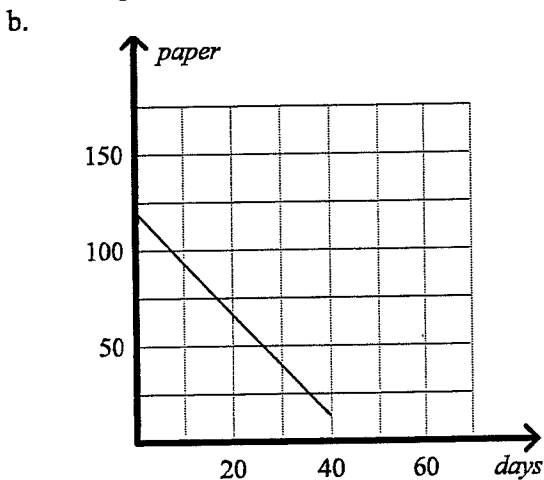
- d. x -intercept: $(-6, 0)$
 y -intercept: $(0, -3)$



7. The office manager of a small office ordered 120 packs of printer paper. Based on average daily use, she knows that the paper will last about 45 days. What graph represents this situation? How many packs of printer paper should the manager expect to have after 35 days?

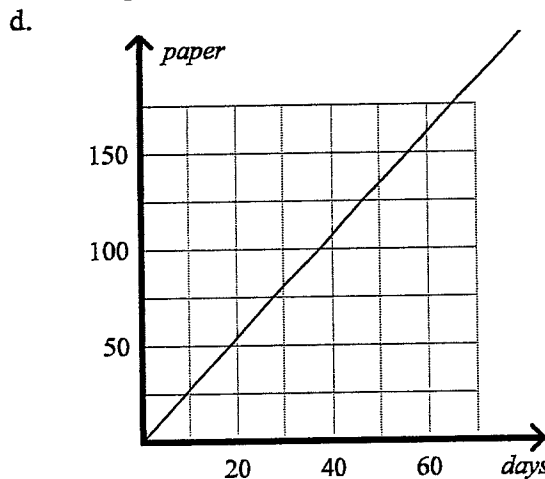


93.3 packs



93.3 packs

26.7 packs



26.7 packs

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

8. the line parallel to $y = 2x + 3$ through $(6, 4)$

a. $y = 2x - 8$

b. $y = -2x - 8$

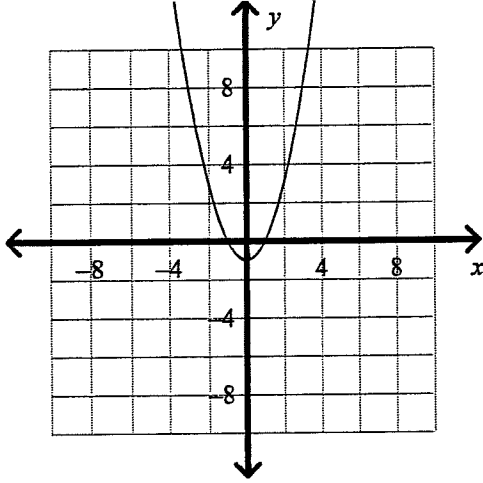
c. $y = 2x - 16$

d. $y = -\frac{1}{2}x - 8$

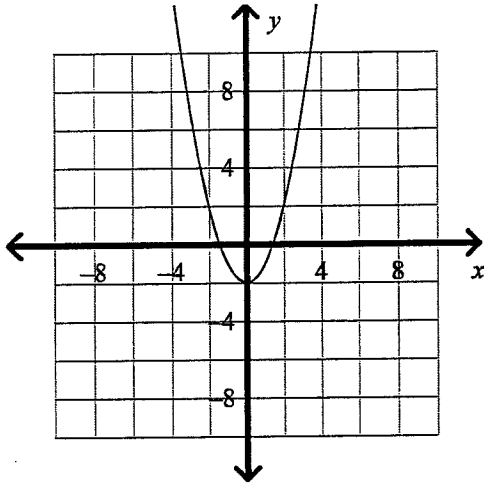
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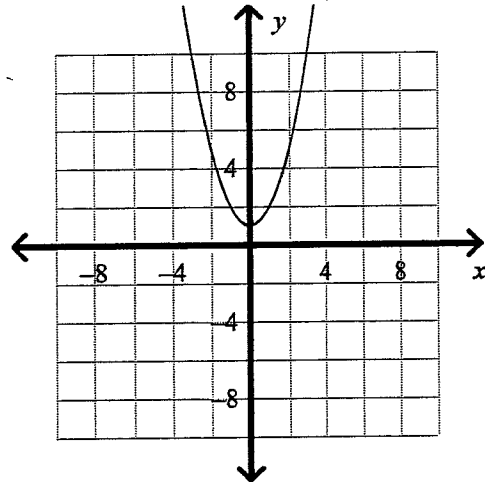
14. What is the graph of $y = x^2 - 1$ (shown below) translated up 2 units?



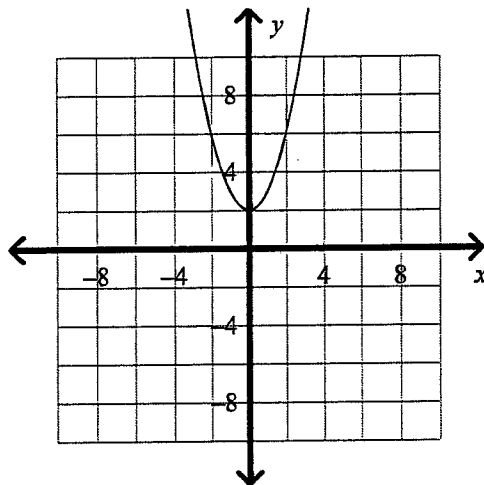
a.



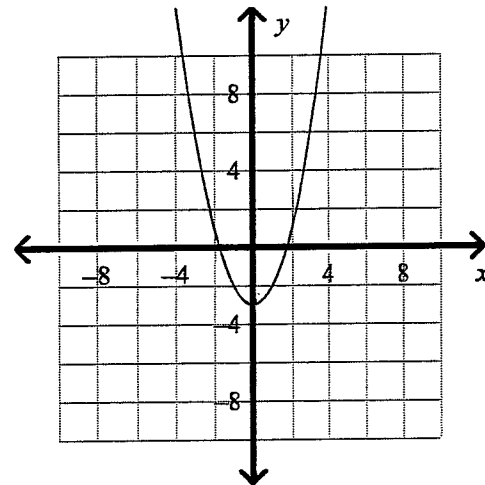
c.



b.



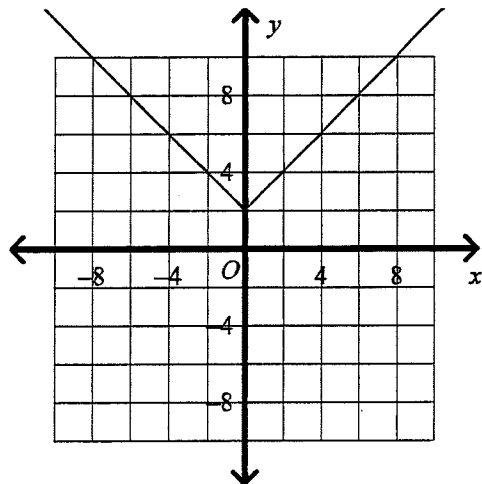
d.



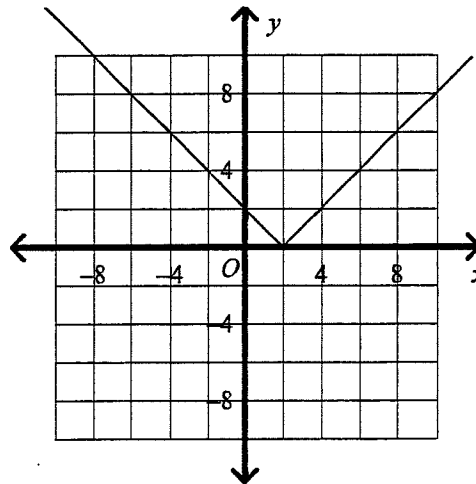
What is the graph of the absolute value equation?

___ 15. $y = |x| - 2$

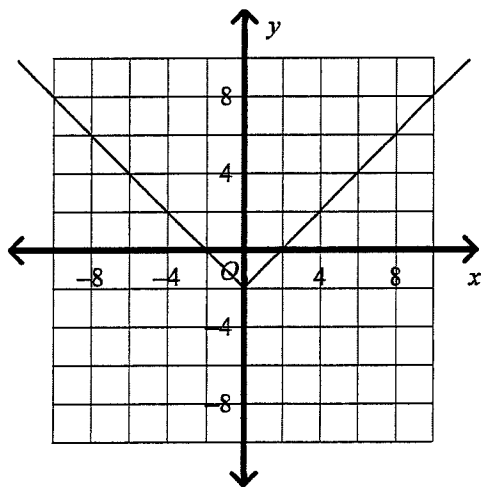
a.



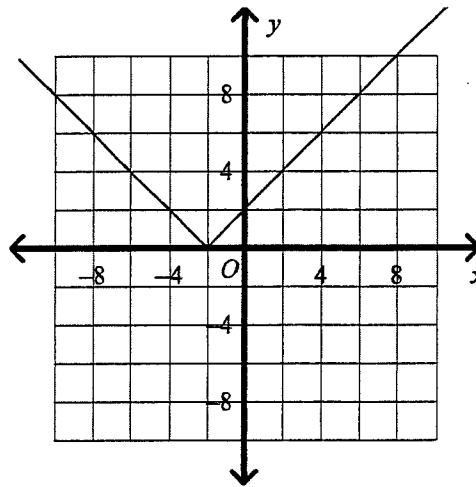
c.



b.

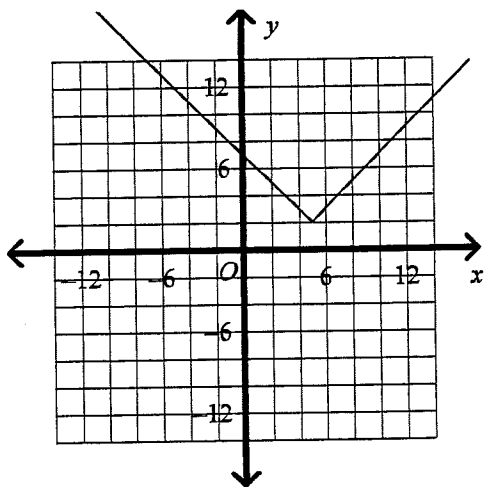


d.

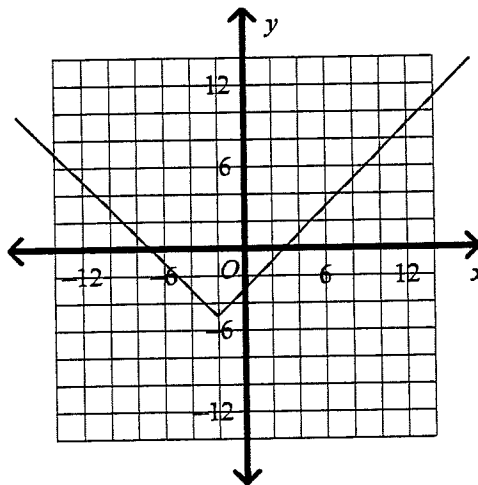


16. $y = |x + 5| + 2$

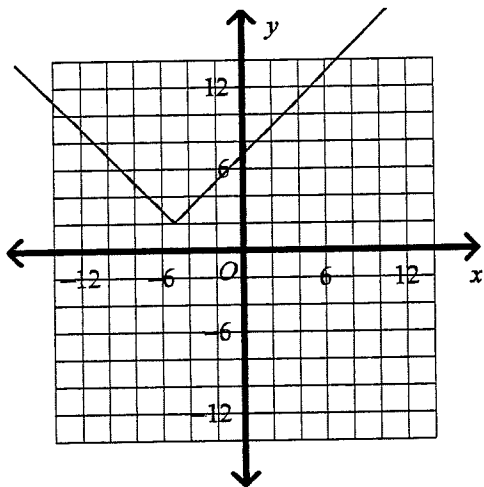
a.



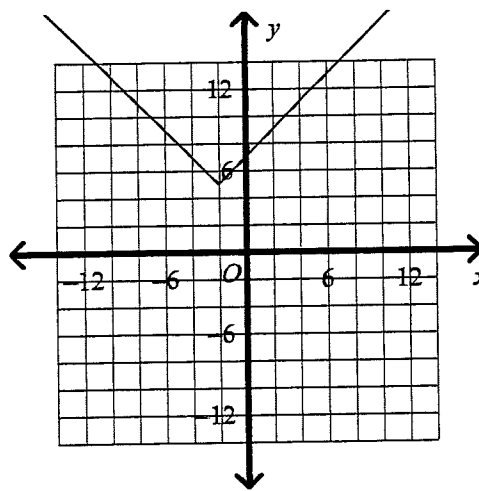
c.



b.



d.



17. Which of the following describes the translation of $y = |x|$ to $y = |x + 7| - 2$?
- | | |
|---|--|
| a. $y = x $ translated 7 units to the right and 7 units down | c. $y = x $ translated 2 units to the left and 7 units down |
| b. $y = x $ translated 2 units to the right and 7 units up | d. $y = x $ translated 7 units to the left and 2 units down |
18. Let $f(x) = -7x - 4$ and $g(x) = 3x + 6$. Find $f(x) + g(x)$.
- | | | | |
|--------------|---------------|---------------|----------------|
| a. $-4x + 2$ | b. $-4x - 10$ | c. $-10x + 2$ | d. $-10x - 10$ |
|--------------|---------------|---------------|----------------|
19. Let $f(x) = 3x - 6$ and $g(x) = 5x - 2$. Find $f(x) - g(x)$.
- | | | | |
|--------------|-------------|-------------|--------------|
| a. $-2x - 4$ | b. $8x - 4$ | c. $8x - 8$ | d. $-2x - 8$ |
|--------------|-------------|-------------|--------------|
20. Let $f(x) = x - 2$ and $g(x) = x^2$. Find $(g \circ f)(-3)$.
- | | | | |
|-------|------|------|-------|
| a. 25 | b. 1 | c. 6 | d. -5 |
|-------|------|------|-------|

_____ 21. Let $f(x) = 3x - 6$ and $g(x) = x - 2$. Find $\frac{f}{g}$ and its domain.

- a. 3; all real numbers
- b. 3; all real numbers except $x = 2$
- c. 1; all real numbers
- d. -3; all real numbers except $x = 3$

What is the inverse of the given relation?

_____ 22. $y = 3x - 3$

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

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

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

_____ 23. $C + A$

a. not possible

b. $\begin{bmatrix} -7 & -4 & 2 \\ -4 & 6 & 6 \end{bmatrix}$

c. $\begin{bmatrix} -7 & 11 \\ -7 & -4 \end{bmatrix}$

d. $\begin{bmatrix} 3 & 10 & -4 \\ -2 & -6 & 6 \end{bmatrix}$

_____ 24. $\begin{bmatrix} -1 & -1 & 7 \\ 0 & 3 & 2 \end{bmatrix} + \begin{bmatrix} -2 & 0 & 9 \\ -8 & 5 & -1 \end{bmatrix}$

a. $\begin{bmatrix} -3 & 1 & 16 \\ -8 & 8 & 1 \end{bmatrix}$

b. $\begin{bmatrix} -3 & -1 & 16 \\ 8 & -8 & 1 \end{bmatrix}$

c. $\begin{bmatrix} -3 & -1 & 16 \\ -8 & 8 & 1 \end{bmatrix}$

d. $\begin{bmatrix} -3 & 1 & 16 \\ -8 & 8 & -1 \end{bmatrix}$

Find the values of the variables.

_____ 25. $\begin{bmatrix} -8 + t & 0 \\ 8 & -10 \end{bmatrix} = \begin{bmatrix} -5 & 0 \\ 8 & -2y - 2 \end{bmatrix}$

- a. $t = 3, y = 6$
- b. $t = 3, y = 4$

- c. $t = 4, y = 3$
- d. $t = -13, y = 4$

Find the product.

_____ 26. $\begin{bmatrix} 7 & 8 \\ -7 & 8 \end{bmatrix} \begin{bmatrix} 5 & 2 \\ 6 & 5 \end{bmatrix}$

a. $\begin{bmatrix} 35 & 48 \\ 14 & 40 \end{bmatrix}$

b. $\begin{bmatrix} -35 & 48 \\ -14 & 40 \end{bmatrix}$

c. $\begin{bmatrix} 83 & 54 \\ 26 & 13 \end{bmatrix}$

d. $\begin{bmatrix} 83 & 54 \\ 13 & 26 \end{bmatrix}$

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

_____ 27. $\begin{bmatrix} 4 & 5 \\ 9 & -2 \end{bmatrix} \begin{bmatrix} 1 & 7 \end{bmatrix}$

a. defined; 2×2

b. defined; 2×1

c. defined; 1×2

d. undefined

Evaluate the determinant of the matrix.

_____ 28. $\begin{bmatrix} -5 & -4 \\ 4 & 0 \end{bmatrix}$

a. -16

b. 1

c. 16

d. -1

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

_____ 29. $A = \begin{bmatrix} -1 & 0 \\ 2 & -1 \end{bmatrix}$

a. $\begin{bmatrix} -1 & 0 \\ -2 & -1 \end{bmatrix}$

b. $\begin{bmatrix} -1 & 0 \\ -2 & -1 \end{bmatrix}$

c. $\begin{bmatrix} -1 & 0 \\ -2 & 1 \end{bmatrix}$

d. does not exist

30.

Write the system $\begin{cases} 9y + 6z = -5 \\ 5x + 7y = -3 \\ 7x + 9z = -9 \end{cases}$ as a matrix equation.

a.
$$\begin{bmatrix} 0 & 9 & 6 \\ 5 & 7 & 0 \\ 7 & 0 & 9 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -5 \\ -3 \\ -9 \end{bmatrix}$$

c.
$$\begin{bmatrix} 0 & 5 & 7 \\ 9 & 7 & 0 \\ 6 & 0 & 9 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -5 \\ -3 \\ -9 \end{bmatrix}$$

b.
$$\begin{bmatrix} 9 & 6 \\ 5 & 7 \\ 0 & 9 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -5 \\ -3 \\ -9 \end{bmatrix}$$

d.
$$\begin{bmatrix} 0 & 9 & 6 \\ 5 & 7 & 0 \\ 7 & 0 & 9 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -3 \\ -5 \\ -9 \end{bmatrix}$$

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

31.
$$\begin{cases} -x + 2y = 9 \\ -x + 3y = 2 \end{cases}$$

a.
$$\begin{bmatrix} 23 \\ 7 \end{bmatrix}$$

b.
$$\begin{bmatrix} -7 \\ -23 \end{bmatrix}$$

c.
$$\begin{bmatrix} -23 \\ -7 \end{bmatrix}$$

d. no solution

32.
$$\begin{cases} 3x + 2y = 11 \\ 2x + y = 2 \end{cases}$$

a.
$$\begin{bmatrix} -7 \\ 16 \end{bmatrix}$$

b.
$$\begin{bmatrix} 7 \\ -16 \end{bmatrix}$$

c.
$$\begin{bmatrix} 16 \\ -7 \end{bmatrix}$$

d. no solution

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

33. $y = -2x^2 + 32x - 20$

- a. vertex: (8, 108)
axis of symmetry: $x = 8$
b. vertex: (-8, 108)
axis of symmetry: $x = -8$

- c. vertex: (8, 108)
axis of symmetry: $x = 108$
d. vertex: (-8, -108)
axis of symmetry: $y = -8$

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

___ 34. $y = 2x^2 + 4x - 16$

- a. minimum value: 1
range: $y \geq 1$
b. minimum value: -18
range: $y \geq -18$

- c. minimum value: -18
range: $y \geq -1$
d. minimum value: -1
range: $y \geq -1$

What is the vertex form of the equation?

___ 35. $y = x^2 + 12x - 11$

- a. $y = (x + 6)^2 + 47$
b. $y = (x - 6)^2 + 47$

- c. $y = (x - 6)^2 - 47$
d. $y = (x + 6)^2 - 47$

What is the expression in factored form?

___ 36. $x^2 + 18x + 80$

- a. $(x + 8)(x - 10)$
b. $(x + 10)(x - 8)$

- c. $(x + 10)(x + 8)$
d. $(x - 8)(x - 10)$

___ 37. $x^2 - 11x + 18$

- a. $(x - 9)(x + 2)$
b. $(x - 2)(x - 9)$

- c. $(x - 2)(x + 9)$
d. $(x + 9)(x + 2)$

What is the expression in factored form?

___ 38. $-8x^2 - 12x$

- a. $-4x(2x + 3)$
b. $4x(2x + 3)$

- c. $-4x(2x - 3)$
d. $-4(2x + 3)$

___ 39. $2x^2 + 22x + 60$

- a. $2(x + 6)(x - 5)$
b. $2(x - 6)(x - 5)$

- c. $2(x - 6)(x + 5)$
d. $2(x + 6)(x + 5)$