

8. $16x^2 + 25 = 0$

a. $-\frac{25}{16}i, \frac{25}{16}i$

b. $-\frac{4}{5}i, \frac{4}{5}i$

c. $-\frac{5}{4}, \frac{5}{4}$

d. $-\frac{5}{4}i, \frac{5}{4}i$

9. $x^2 + 10x + 25 = 64$

a. 13, -3

b. 3, -3

c. 13, -13

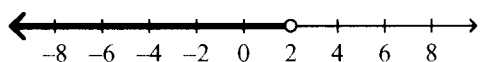
d. 3, -13

Solve the inequality. Graph the solution set.

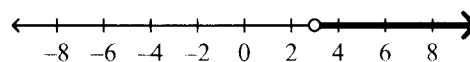
10.

$3(2y + 3) > 21$

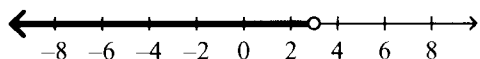
a. $y < 2$



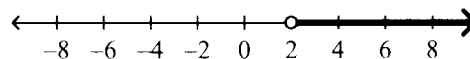
c. $y > 3$



b. $y < 3$



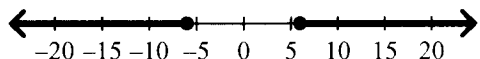
d. $y > 2$



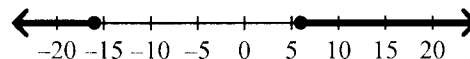
Solve the inequality. Graph the solution.

11. $|2x + 10| \geq 22$

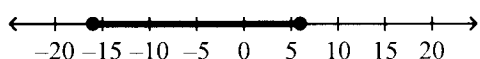
a. $x \leq -6$ or $x \geq 6$



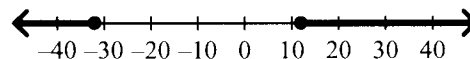
c. $x \leq -16$ or $x \geq 6$



b. $x \geq -16$ or $x \leq 6$

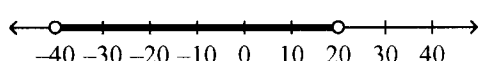


d. $x \leq -32$ or $x \geq 12$

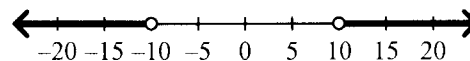


12. $|2x + 10| < 30$

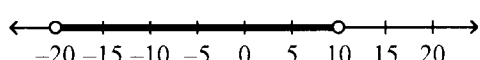
a. $-40 < x < 20$



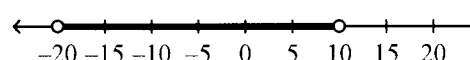
c. $x < -10$ or $x > 10$



b. $-20 > x > 10$

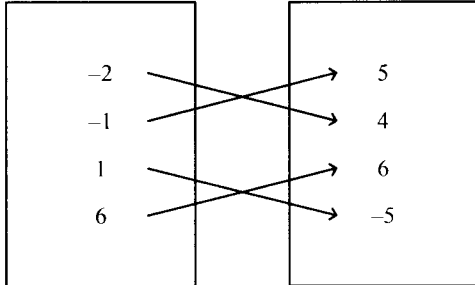


d. $-20 < x < 10$

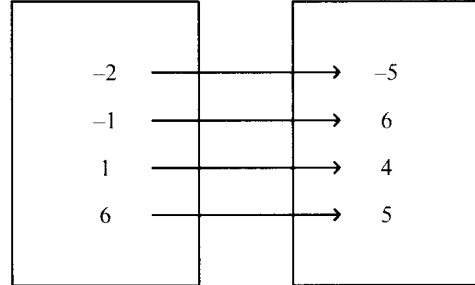


_____ 13. Make a mapping diagram for the relation.
 $\{(-2, -5), (-1, 6), (1, 4), (6, 5)\}$

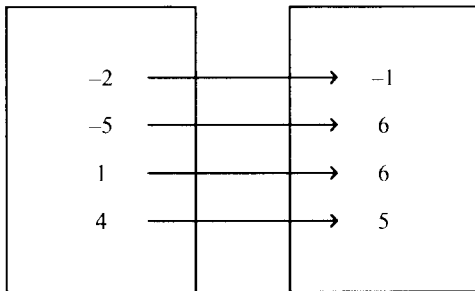
a.



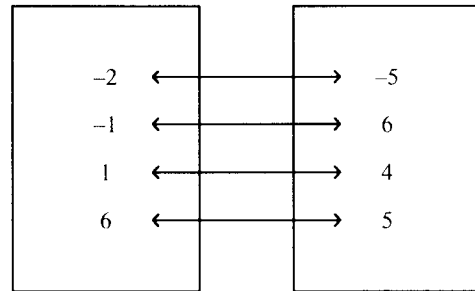
c.



b.



d.



_____ 14. For $f(x) = -5x + 1$, find $f(-1)$.

a. -4

b. -6

c. 6

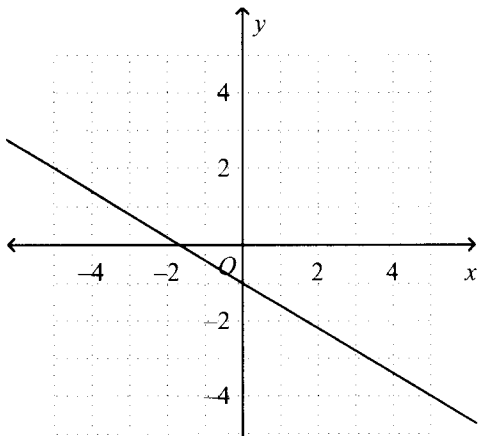
d. 4

Name: _____

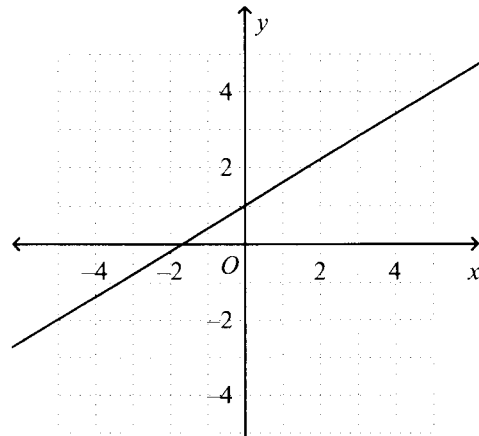
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15. Graph the equation $y = -\frac{3}{5}x + 1$.

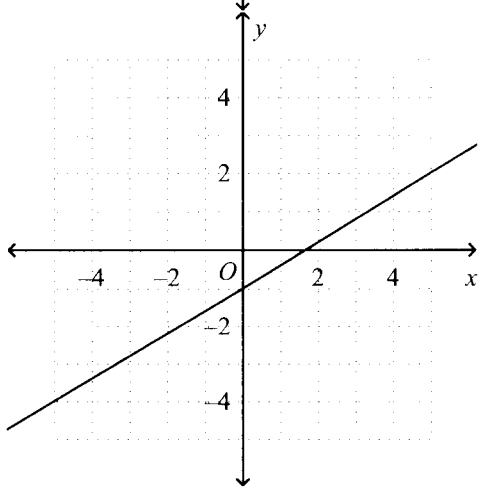
a.



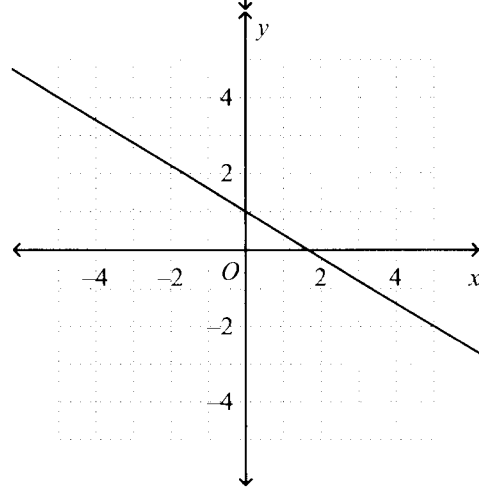
c.



b.

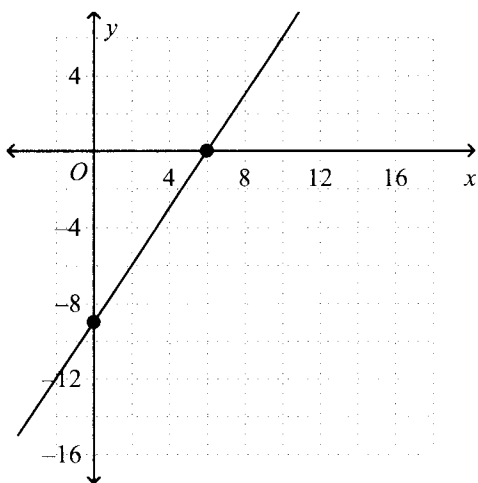


d.

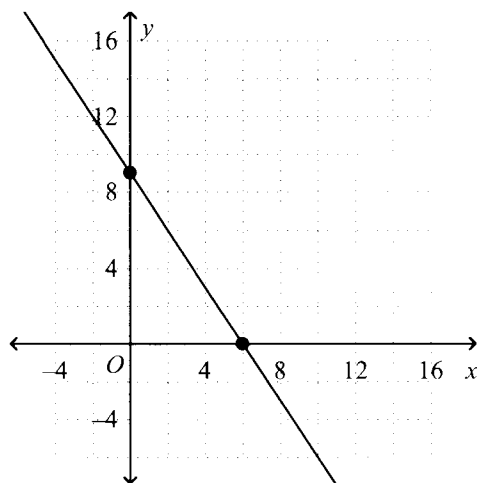


_____ 16. Graph the equation $3x + 2y = 18$ by finding the intercepts.

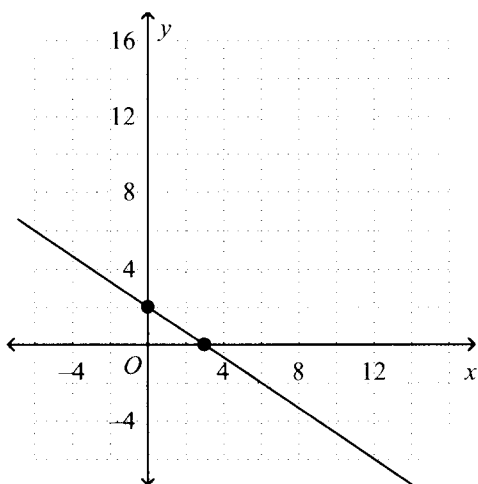
a.



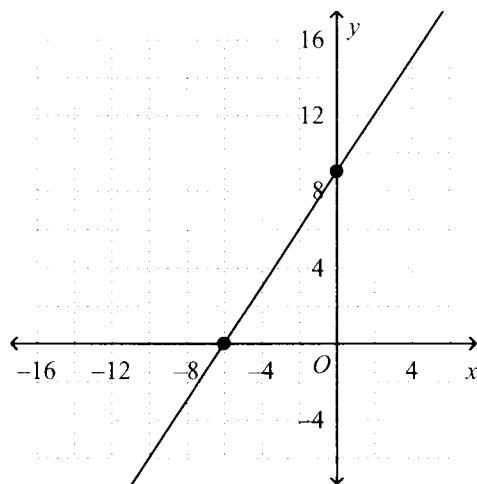
c.



b.



d.



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

_____ 17. $(4, -11)$ and $(8, -12)$

- a. 4 b. $\frac{1}{4}$ c. -4 d. $-\frac{1}{4}$

Write in standard form an equation of the line passing through the given point with the given slope.

_____ 18. slope = 6; $(-5, -2)$

- a. $-6x - y = 28$ b. $-6x + y = 28$ c. $6x + y = 28$ d. $-6x + y = -28$

_____ 19. Find the point-slope form of the equation of the line passing through the points $(-1, 0)$ and $(-5, 8)$.

- a. $y - 0 = 2(x + 5)$ c. $y - 8 = -2(x + 1)$
 b. $y - 0 = -2(x + 1)$ d. $y - 0 = 2(x + 1)$

Find an equation for the line:_____ 20. through $(-5, 6)$ and perpendicular to $y = 2x - 4$.

a. $y = -2x - 4$

b. $y = -\frac{1}{2}x + \frac{7}{2}$

c. $y = \frac{1}{2}x + \frac{17}{2}$

d. $y = 2x + 16$

_____ 21. through $(2, 6)$ and parallel to $y = \frac{4}{3}x + 3$.

a. $y = -\frac{3}{4}x + \frac{15}{2}$

b. $y = \frac{3}{4}x + \frac{9}{2}$

c. $y = -\frac{4}{3}x + \frac{26}{3}$

d. $y = \frac{4}{3}x + \frac{10}{3}$

Determine whether y varies directly with x . If so, find the constant of variation k and write the equation.

_____ 22.

| x | y |
|-----|-----|
| 3 | 15 |
| 12 | 60 |
| 48 | 240 |
| 192 | 960 |

a. yes; $k = 5$; $y = 5x$

b. yes; $k = 4$; $y = 4x$

c. yes; $k = 3$; $y = 3x$

d. no

Find the value of y for a given value of x , if y varies directly with x ._____ 23. If $y = 25$ when $x = -100$, what is y when $x = -316$?

a. -1264

b. 1264

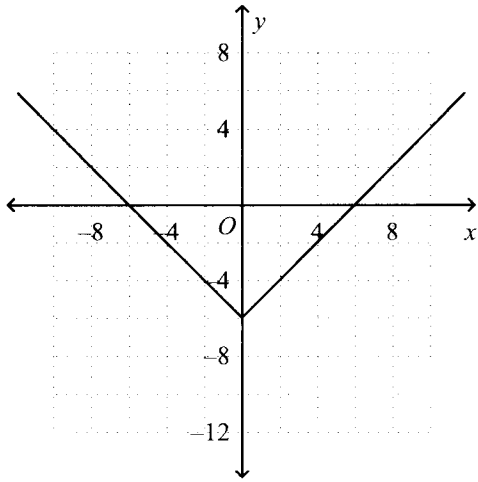
c. -79

d. 79

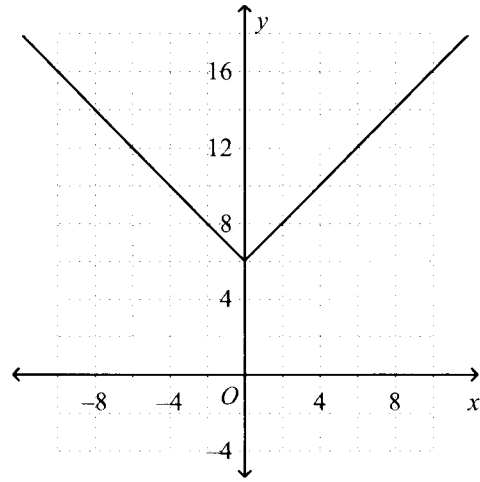
Graph the absolute value equation.

_____ 24. $y = |x + 6|$

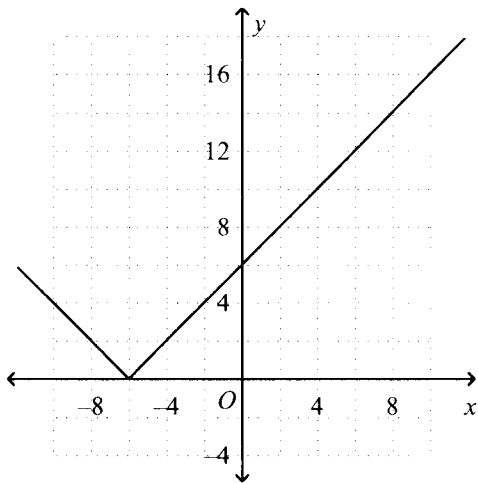
a.



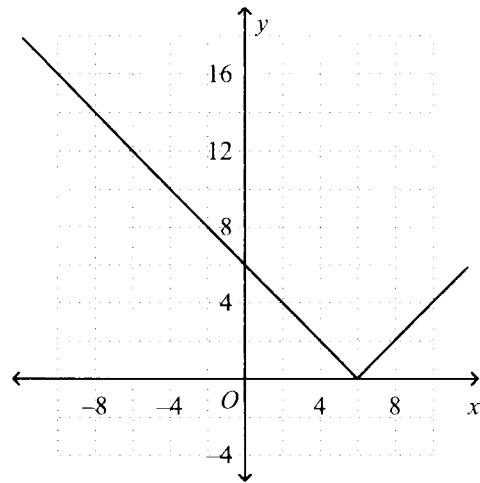
c.



b.

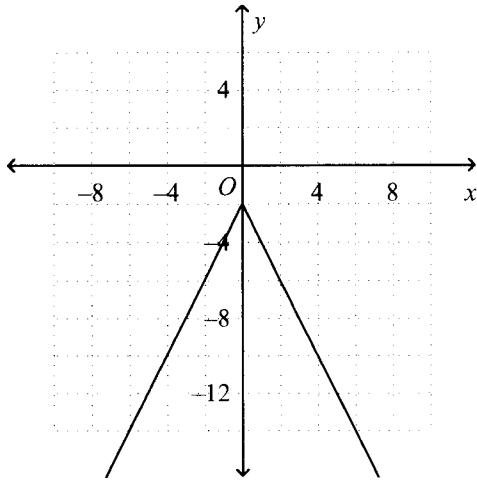


d.

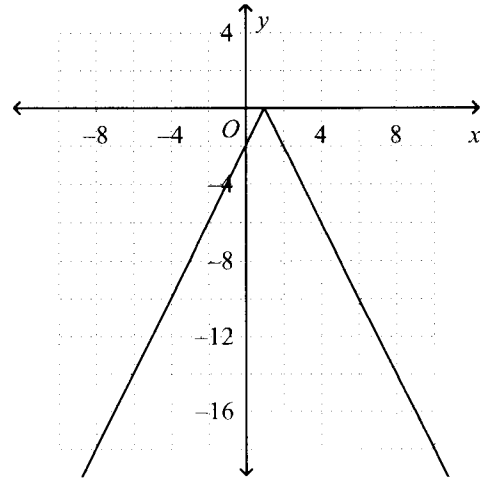


25. $y = -|2x - 2|$

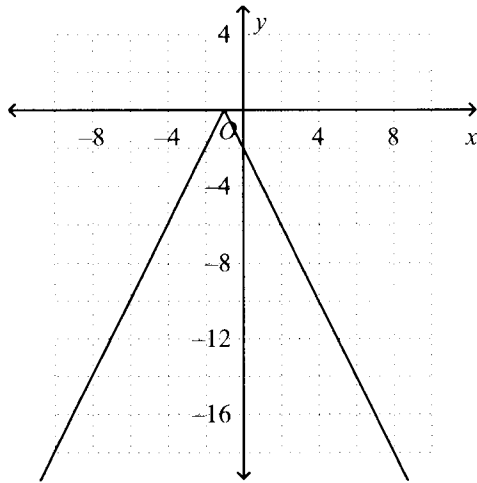
a.



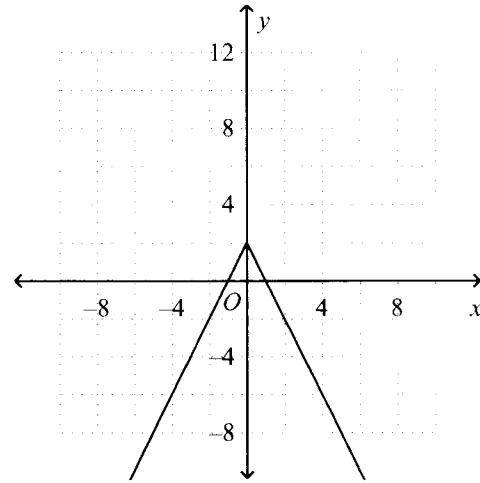
c.



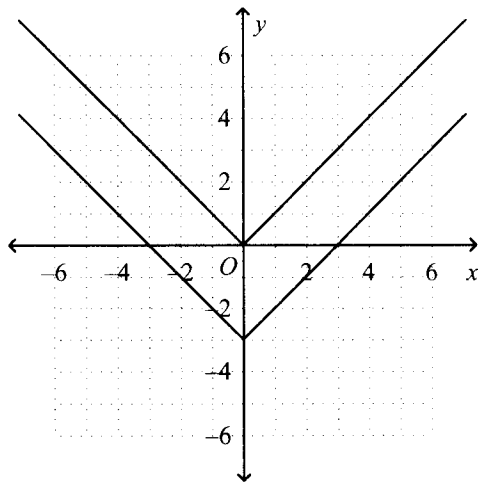
b.



d.



26. Write the equation for the translation of $y = |x|$.



a. $y = |x - 3|$

b. $y = |x + 3|$

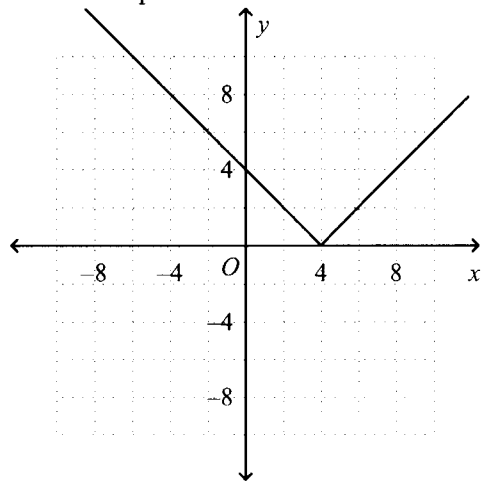
c. $y = |x| - 3$

d. $y = |x| + 3$

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_____ 27. Write an equation for the horizontal translation of $y = |x|$.

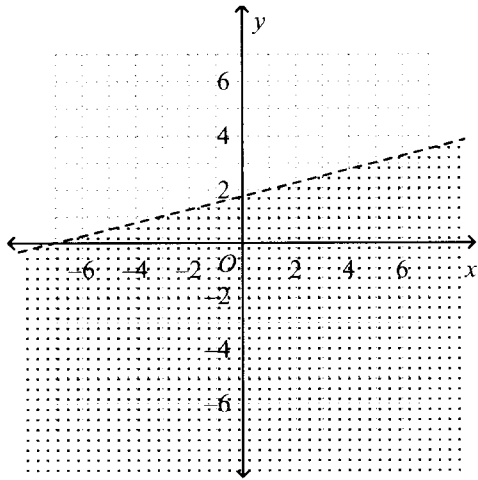


- a. $y = -|x - 4|$ b. $y = -|x + 4|$ c. $y = |x + 4|$ d. $y = |x - 4|$

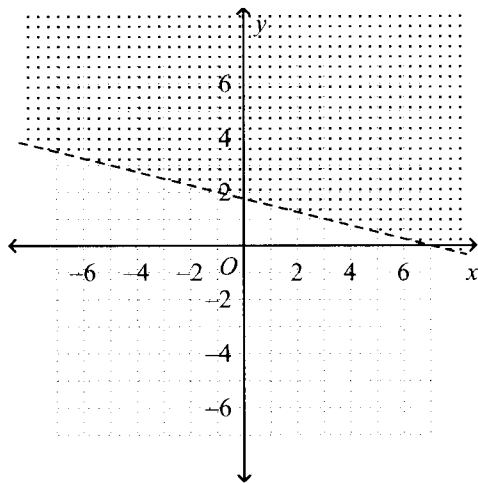
Graph the inequality.

28. $x - 4y < -7$

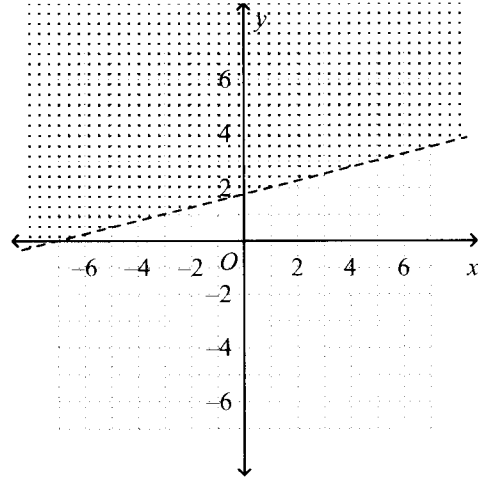
a.



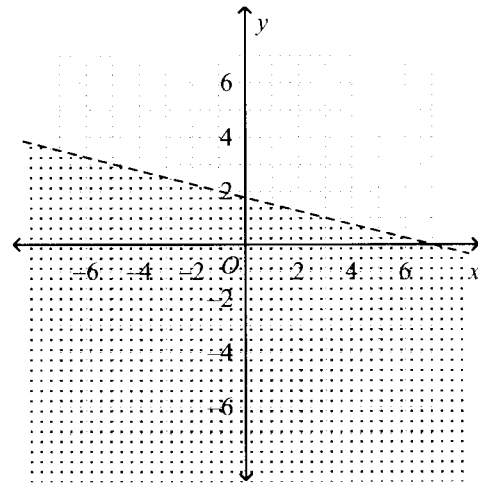
b.



c.



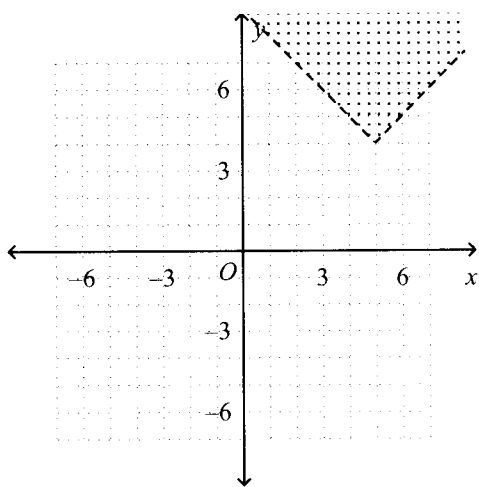
d.



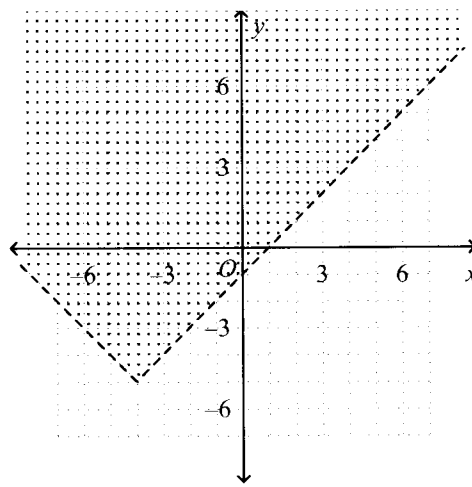
Graph the absolute value inequality.

29. $y < |x + 4| - 5$

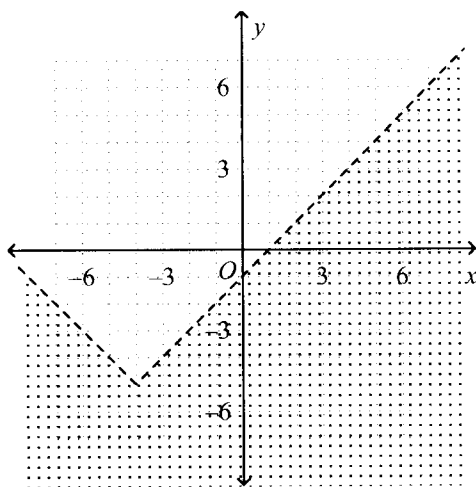
a.



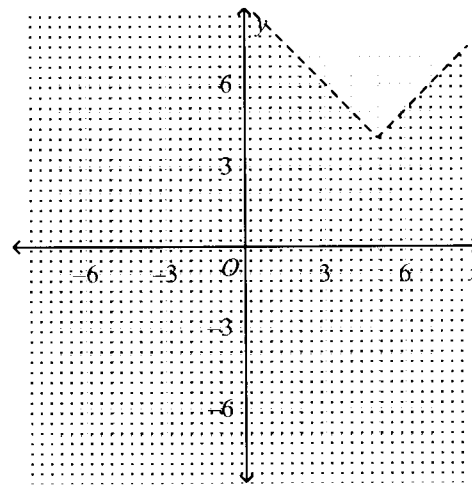
c.



b.



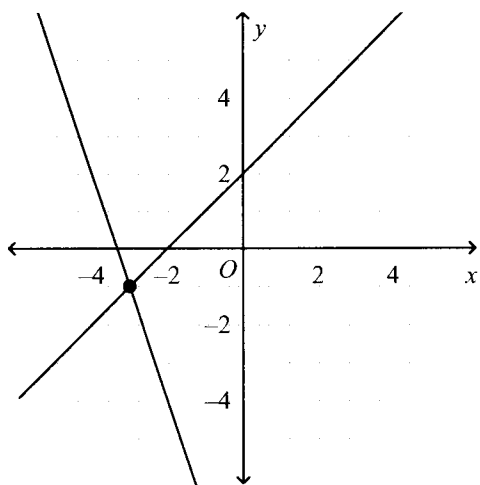
d.



Solve the system by graphing.

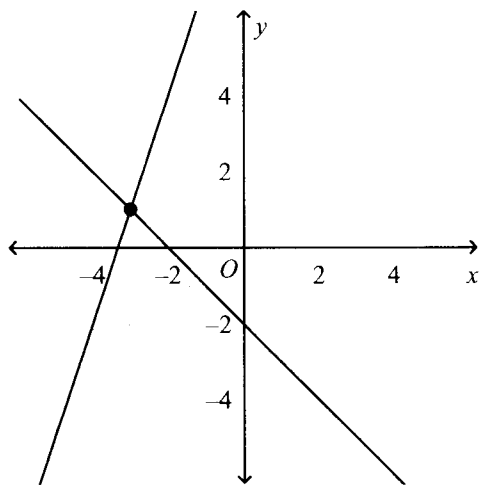
30.
$$\begin{cases} -3x - y = 10 \\ 2x - 2y = -4 \end{cases}$$

a.



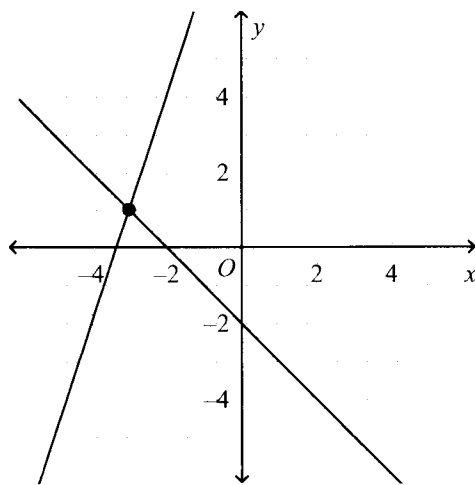
$(-1, -3)$

b.



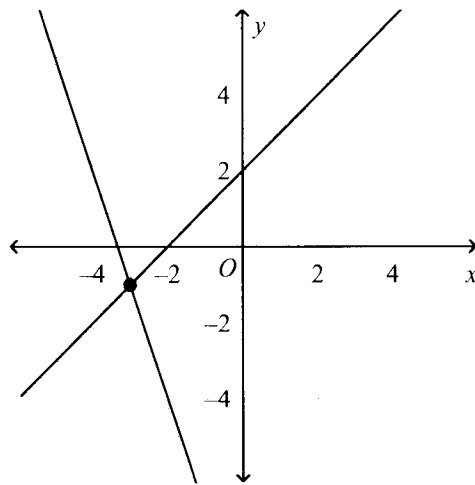
$(1, -3)$

c.



$(-3, 1)$

d.



$(-3, -1)$

_____ 31. A rental car agency charges a flat fee of \$32.00 plus \$1.00 per day to rent a certain car. Another agency charges a fee of \$23.00 plus \$3.25 per day to rent the same car.

- a. Write a system of equations to represent the cost c for renting a car at each agency for d days.
 b. Using a graphing calculator, find the number of days for which the costs are the same. Round your answer to the nearest whole day.

a. a.
$$\begin{cases} c = 1.00d + 32.00 \\ c = 3.25d + 23.00 \end{cases}$$

b. 4

b. a.
$$\begin{cases} c = 1.00d + 23.00 \\ c = 3.25d + 32.00 \end{cases}$$

b. 4

c. a.
$$\begin{cases} c = 1.00d + 32.00 \\ c = 3.25d + 23.00 \end{cases}$$

b. 7

d. a.
$$\begin{cases} c = 1.00d + 23.00 \\ c = 3.25d + 32.00 \end{cases}$$

b. 7

Without graphing, classify each system as *independent*, *dependent*, or *inconsistent*.

_____ 32.
$$\begin{cases} -4x - y = 8 \\ 2x - 4y = 14 \end{cases}$$

a. dependent

b. independent

c. inconsistent

_____ 33.
$$\begin{cases} y = 6x + 3 \\ -12x + 2y = 6 \end{cases}$$

a. dependent

b. independent

c. inconsistent

_____ 34.
$$\begin{cases} 2x - 2y = 0 \\ y = x - 1 \end{cases}$$

a. inconsistent

b. dependent

c. independent

Solve the system by the method of substitution.

_____ 35.
$$\begin{cases} 2x - y = -8 \\ 4x - 4y = -12 \end{cases}$$

a. (2, 5)

b. (-5, -2)

c. (-2, -5)

d. (5, 2)

_____ 36.
$$\begin{cases} -x + 2y - 3z = 3 \\ z = 4 \\ -x - y + 3z = -3 \end{cases}$$

a. (5, -10, 4)

b. (5, 10, 4)

c. (-5, 10, 4)

d. (5, 10, -4)

Use the elimination method to solve the system.

_____ 37.
$$\begin{cases} -3x + 5y = 6 \\ 3x - 3y = -6 \end{cases}$$

a. (-2, 0)

b. (2, -3)

c. (-3, 2)

d. (0, -2)

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ID: A

- _____ 38.
$$\begin{cases} 7x + 5y = 7 \\ 6x - 7y = 6 \end{cases}$$

a. $(-1, -2)$ b. $(0, 1)$ c. $(1, 0)$ d. $(-2, -1)$
- _____ 39.
$$\begin{cases} -x - 2y + 3z = 8 \\ -2x - y + 2z = 10 \\ -2x - 3y + 3z = 4 \end{cases}$$

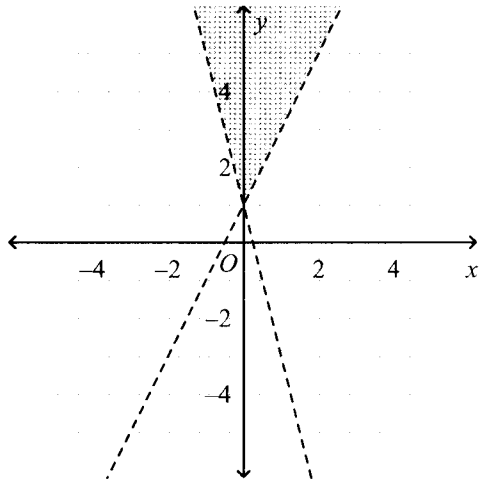
a. $(-2, -6, 6)$ b. $(-2, 6, -6)$ c. $(2, 6, 6)$ d. $(-2, 6, 6)$
- _____ 40.
$$\begin{cases} -4x + 4y - 2z = -8 \\ -3x - y + 4z = 0 \\ 2x - 2y + 3z = -4 \end{cases}$$

a. $(1, -7, -2)$ b. $(-3, 0, 5)$ c. $(-3, -7, -4)$ d. $(3, 5, -4)$

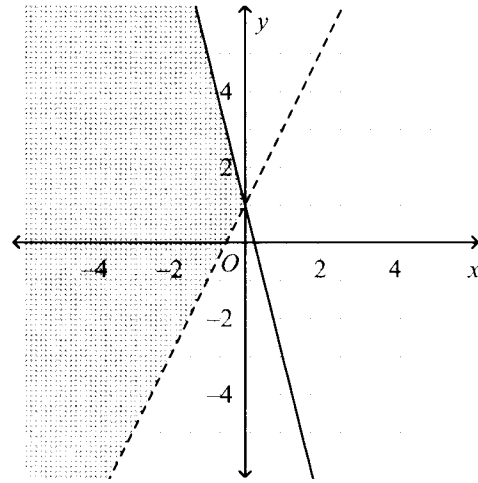
Solve the system of inequalities by graphing.

41.
$$\begin{cases} y \leq -4x + 1 \\ y > 2x + 1 \end{cases}$$

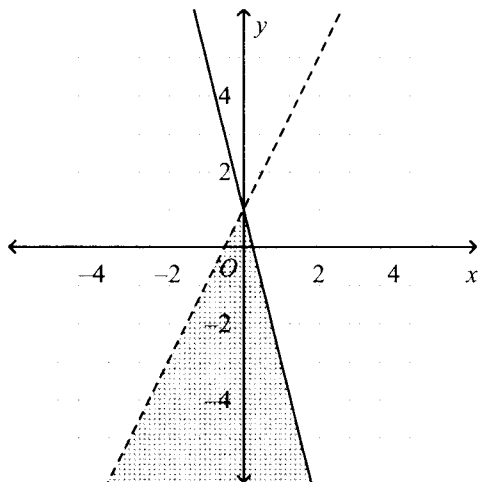
a.



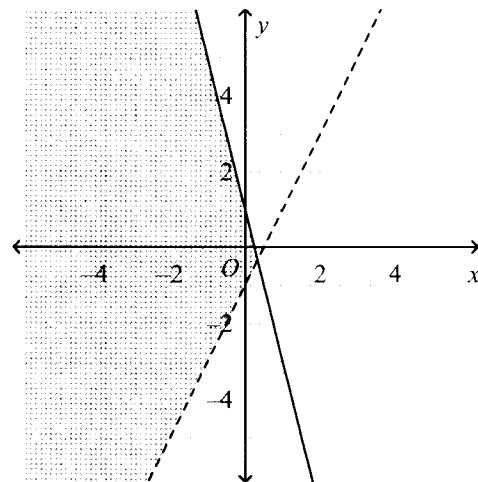
c.



b.

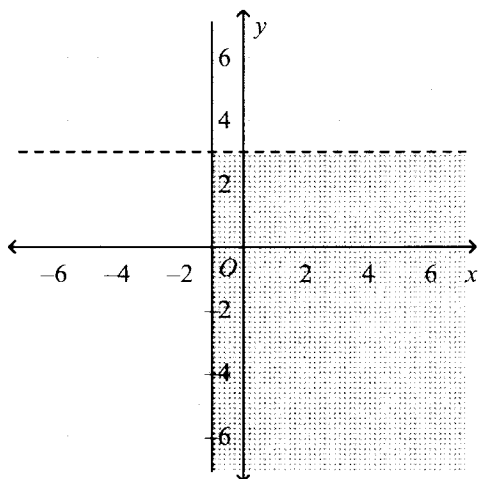


d.

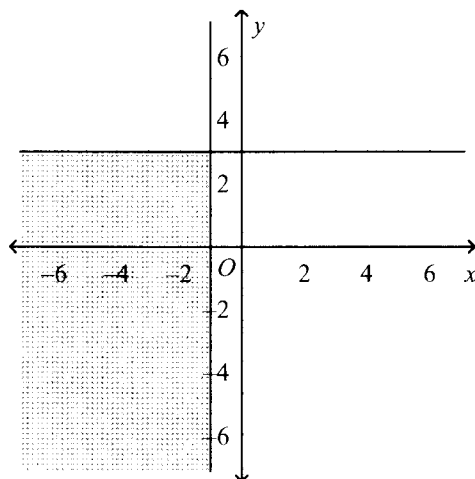


42.
$$\begin{cases} x \geq -1 \\ y > 3 \end{cases}$$

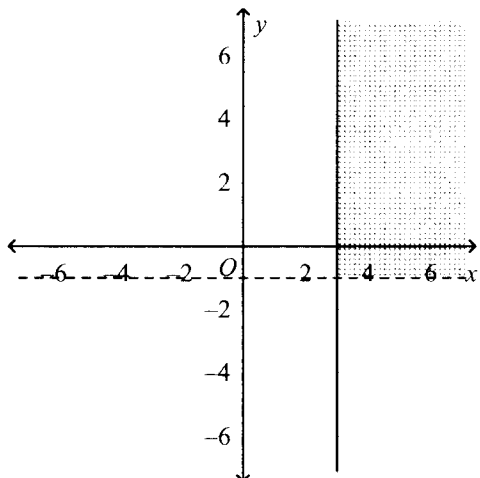
a.



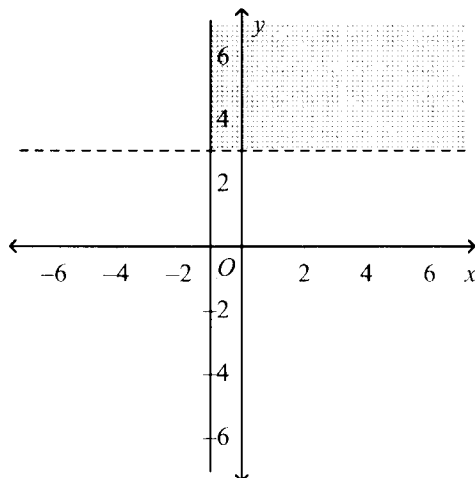
c.



b.

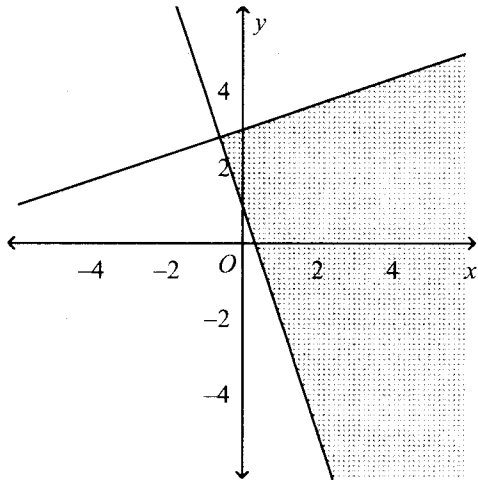


d.

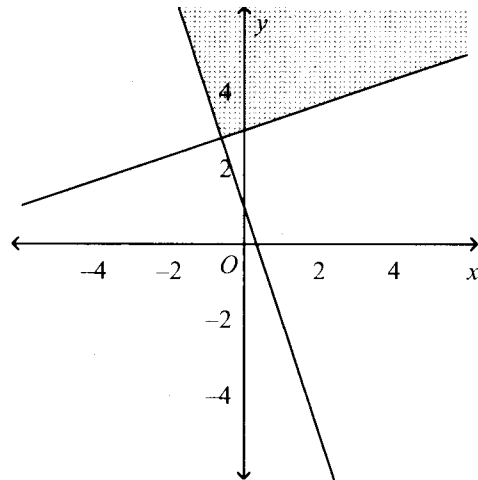


43.
$$\begin{cases} y \geq -3x + 1 \\ y \leq \frac{1}{3}x + 3 \end{cases}$$

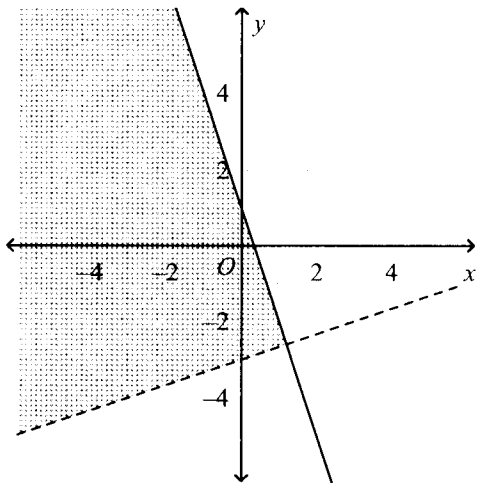
a.



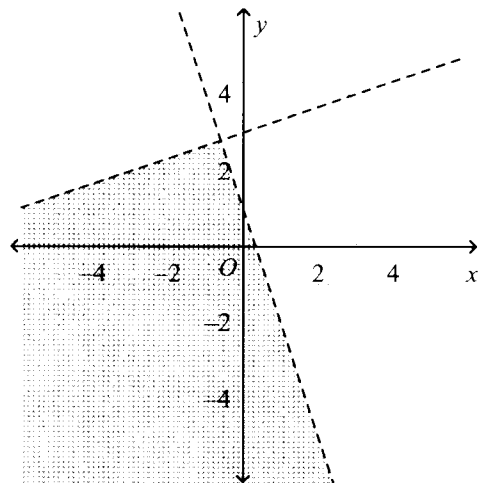
c.



b.



d.

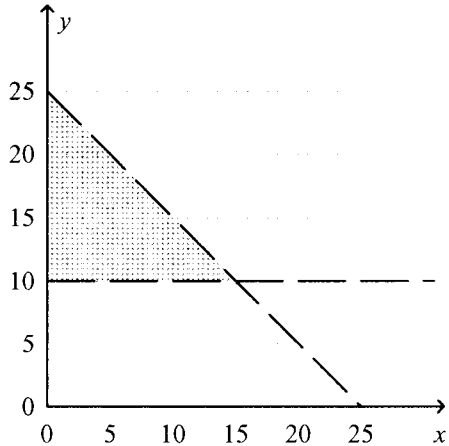


44. Your club is baking vanilla and chocolate cakes for a bake sale. They need at most 25 cakes. You cannot have more than 10 chocolate cakes. Write and graph a system of inequalities to model this system.

a. Let x = the number of vanilla cakes.

Let y = the number of chocolate cakes.

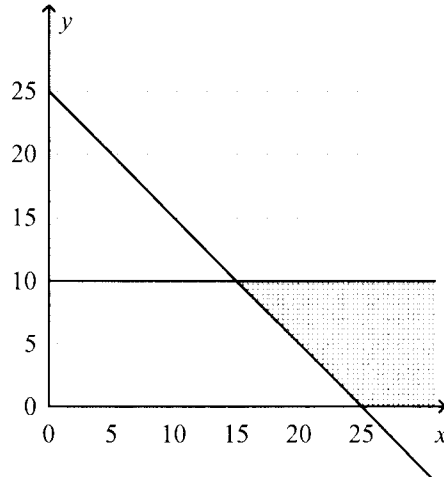
$$\begin{cases} x \geq 0 \\ y \geq 0 \\ x + y < 25 \\ y < 10 \end{cases}$$



c. Let x = the number of vanilla cakes.

Let y = the number of chocolate cakes.

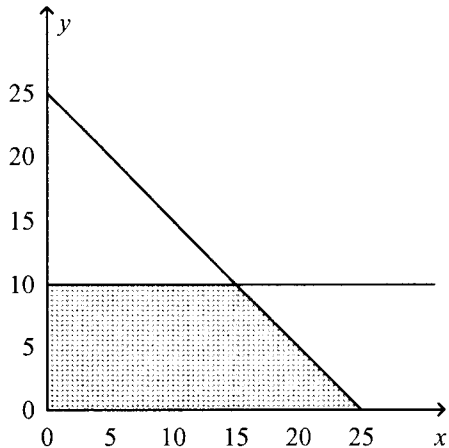
$$\begin{cases} x \geq 0 \\ y \geq 0 \\ x + y \geq 25 \\ y \leq 10 \end{cases}$$



b. Let x = the number of vanilla cakes.

Let y = the number of chocolate cakes.

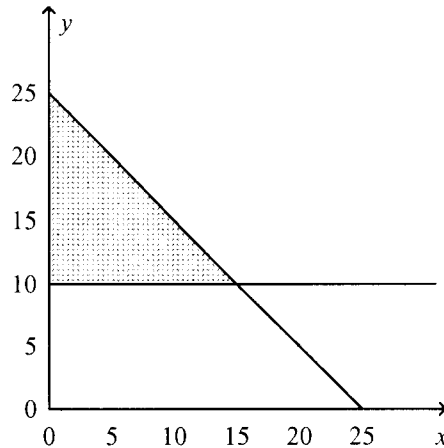
$$\begin{cases} x \geq 0 \\ y \geq 0 \\ x + y \leq 25 \\ y \leq 10 \end{cases}$$



d. Let x = the number of vanilla cakes.

Let y = the number of chocolate cakes.

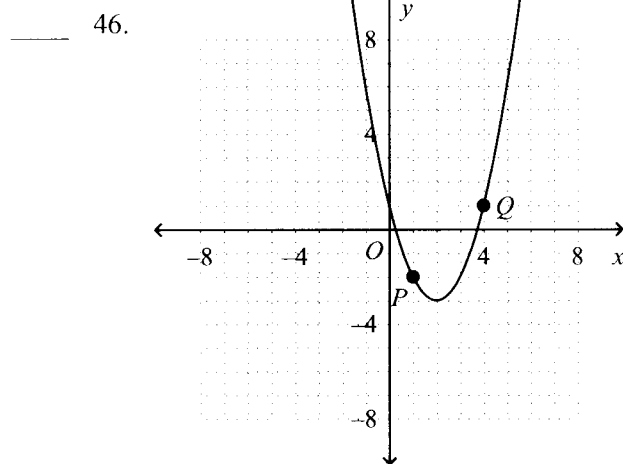
$$\begin{cases} x \geq 0 \\ y \geq 0 \\ x + y \geq 25 \\ y \geq 10 \end{cases}$$



Determine whether the function is linear or quadratic. Identify the quadratic, linear, and constant terms.

- _____ 45. $f(x) = (3x + 2)(5x + 4)$
- a. linear function
linear term: $15x^2$
constant term: 8
- b. linear function
linear term: $22x$
constant term: 8
- c. quadratic function
quadratic term: $6x^2$
linear term: $26x$
constant term: 8
- d. quadratic function
quadratic term: $15x^2$
linear term: $22x$
constant term: 8

Identify the vertex and the axis of symmetry of the parabola. Identify points corresponding to P and Q .



- a. $(2, -3), x = 2$
 $P'(3, -2), Q'(0, 1)$
- b. $(-3, 2), x = -3$
 $P'(1, -2), Q'(-2, -1)$
- c. $(-3, 2), x = -3$
 $P'(3, -2), Q'(0, 1)$
- d. $(2, -3), x = 2$
 $P'(1, -2), Q'(-2, -1)$
- _____ 47. Find a quadratic function to model the values in the table. Predict the value of y for $x = 6$.

| x | y |
|-----|-----|
| -1 | -2 |
| 0 | 4 |
| 3 | -2 |

- a. $y = 2x^2 - 4x + 4; 44$
- b. $y = 2x^2 - 4x - 4; 44$
- c. $y = -2x^2 + 4x + 4; -48$
- d. $y = -2x^2 + 4x + 4; -44$

_____ 48. Identify the vertex and the y -intercept of the graph of the function $y = -2(x - 2)^2 + 3$.

- | | |
|--|---|
| a. vertex: $(-2, -3)$; y-intercept: -8 | c. vertex: $(-2, 3)$; y-intercept: -5 |
| b. vertex: $(2, 3)$; y-intercept: -5 | d. vertex: $(2, -3)$; y-intercept: 7 |

_____ 49. Write $y = -2x^2 + 16x - 29$ in vertex form.

- | | |
|---------------------------|----------------------------|
| a. $y = -2(x - 4)^2 + 3$ | c. $y = (x - 4)^2 - 29$ |
| b. $y = -8(x + 16)^2 + 3$ | d. $y = -2(x + 16)^2 - 29$ |

Factor the expression.

_____ 50. $-6x^2 - 4x$

- | | |
|------------------|--------------------|
| a. $-6x(x + 2)$ | c. $3x(x - 2 + 2)$ |
| b. $-2x(3x + 2)$ | d. $x(-6x - 4)$ |

_____ 51. $-15x^2 - 10x - 15$

- | | |
|--------------------------|------------------------|
| a. $3(-5x^2 - 10x - 15)$ | c. $-5(3x^2 + 2x + 3)$ |
| b. $-15x^2 - 10x - 15$ | d. $-15x(3x + 2)$ |

_____ 52. $x^2 + 2x - 24$

- | | |
|---------------------|---------------------|
| a. $(x + 6)(x - 4)$ | c. $(x - 4)(x - 6)$ |
| b. $(x + 6)(x + 4)$ | d. $(x + 4)(x - 6)$ |

_____ 53. $2x^2 + 9x + 10$

- | | |
|----------------------|----------------------|
| a. $(x + 5)(2x + 2)$ | c. $(2x + 5)(x - 2)$ |
| b. $(2x + 2)(x - 5)$ | d. $(2x + 5)(x + 2)$ |

_____ 54. $16x^2 + 24x + 9$

- | | |
|------------------|------------------------|
| a. $(-4x + 3)^2$ | c. $(4x + 3)(-4x - 3)$ |
| b. $(4x - 3)^2$ | d. $(4x + 3)^2$ |

_____ 55. $4x^2 - 9$

- | | |
|------------------------|-----------------------|
| a. $(2x + 3)(-2x - 3)$ | c. $(2x - 3)^2$ |
| b. $(-2x + 3)(2x - 3)$ | d. $(2x + 3)(2x - 3)$ |

_____ 56. Solve by factoring.

$$4x^2 - 20x - 56 = 0$$

- | | | | |
|------------|----------------------|-----------|----------------------|
| a. $7, -2$ | b. $-2, \frac{4}{7}$ | c. $7, 4$ | d. $-7, \frac{4}{7}$ |
|------------|----------------------|-----------|----------------------|

_____ 57. Simplify $\sqrt{-150}$ using the imaginary number i .

- | | | | |
|-----------------|-----------------|-----------------|------------------|
| a. $5\sqrt{-6}$ | b. $-5\sqrt{6}$ | c. $5i\sqrt{6}$ | d. $i\sqrt{150}$ |
|-----------------|-----------------|-----------------|------------------|

Write the number in the form $a + bi$.

_____ 58. $\sqrt{-25} + 6$

- | | |
|-------------|---------------------|
| a. $6 + 5i$ | c. $25 + 6i$ |
| b. $5 + 6i$ | d. $6 + i\sqrt{25}$ |

- _____ 59. $-3 - \sqrt{-24}$
 a. $-3 + 2i\sqrt{6}$ c. $3 - 2i\sqrt{6}$
 b. $3 + i\sqrt{24}$ d. $-3 - 2i\sqrt{6}$
- _____ 60. Find $|-4 + 2i|$.
 a. $\sqrt{-8}$ b. $2\sqrt{5}$ c. 12 d. -2
- _____ 61. Find the additive inverse of $-7 + 8i$.
 a. $-7 - 8i$ c. $7 + 8i$
 b. $7 - 8i$ d. $-7 + 8i$

Simplify the expression.

- _____ 62. $(4 - 3i) - (3 - 4i)$
 a. $7 - 7i$ c. $2i$
 b. $-1 - i$ d. $1 + i$
- _____ 63. $(3 + 4i)(-4 + 4i)$
 a. $-12 - 4i$ c. $-28 - 4i$
 b. $-12 + 16i$ d. $4 - 4i$
- _____ 64. Find the missing value to complete the square.
 $x^2 + 8x + \underline{\hspace{2cm}}$
 a. 64 b. 8 c. 16 d. 256

Solve the quadratic equation by completing the square.

- _____ 65. $x^2 + 2x - 5 = 0$
 a. $4 \pm \sqrt{6}$ c. $1 \pm \sqrt{7}$
 b. $-1 \pm \sqrt{6}$ d. $-2 \pm \sqrt{7}$
- _____ 66. $x^2 + 12x + 42 = 0$
 a. $-12 \pm \sqrt{30}$ c. $6 \pm i\sqrt{30}$
 b. $-6 \pm i\sqrt{6}$ d. $144 \pm i\sqrt{6}$
- _____ 67. $5x^2 + 5x = 11$
 a. $1 \pm \frac{\sqrt{245}}{5}$ c. $-\frac{1}{2} \pm \frac{\sqrt{245}}{10}$
 b. $-1 \pm \frac{\sqrt{225}}{5}$ d. $\frac{1}{2} \pm \frac{\sqrt{60}}{10}$

Rewrite the equation in vertex form.

- _____ 68. $y = x^2 - 12x + 26$
 a. $y = (x - 6)^2 + 62$ c. $y = (x - 12)^2 + 32$
 b. $y = (x - 12)^2 - 10$ d. $y = (x - 6)^2 - 10$

Name: _____

ID: A

Use the Quadratic Formula to solve the equation.

_____ 69. $-x^2 - 6x + 7 = 0$

a. $-35, 29$

b. $-7, 1$

c. $-1, 7$

d. $-14, 2$

_____ 70. $2x^2 - 3x - 7 = 0$

a. $\frac{3}{4} \pm \frac{\sqrt{32}}{2}$

c. $\frac{3}{4} \pm \frac{\sqrt{65}}{4}$

b. $\frac{4}{3} \pm \frac{\sqrt{130}}{4}$

d. $\frac{3}{2} \pm \frac{\sqrt{65}}{2}$