

Algebra 1 Final Exam Review**Multiple Choice**

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

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

1. slope: 1, y-intercept: 10

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

c. $y = x + 10$

b. $y = x - 10$

d. $y = -x + 10$

Write a linear equation in slope-intercept form to model the situation.

2. An icicle is 12 inches long and melts at a rate of $\frac{1}{4}$ inch per hour.

a. $L = 12 - \frac{1}{4}t$

c. $L = 12 - 4t$

b. $L = \frac{1}{4} - 12t$

d. $t = 12 - \frac{1}{4}L$

Beach Bike Rentals charges \$5.00 plus \$0.20 per mile to rent a bicycle.

3. Write an equation for the total cost C of renting a bicycle and riding for m miles.

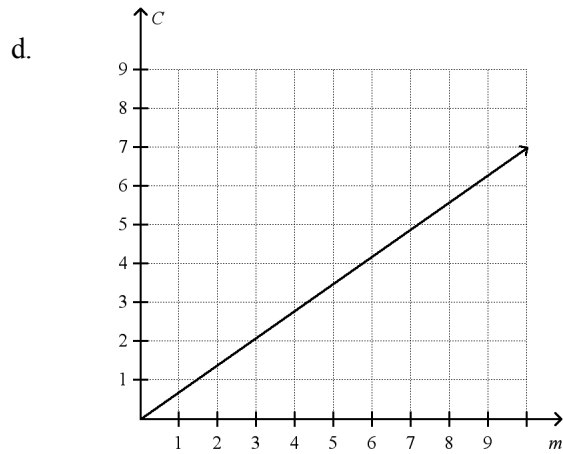
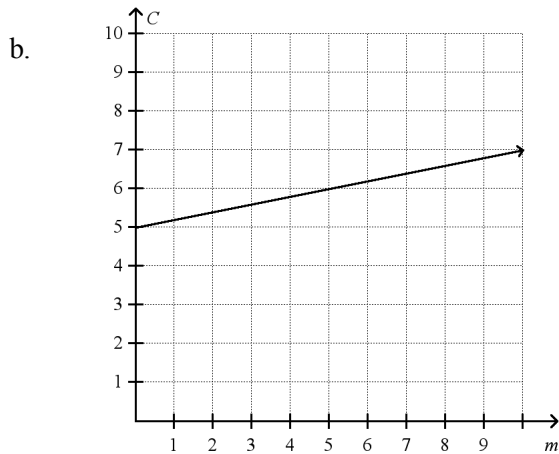
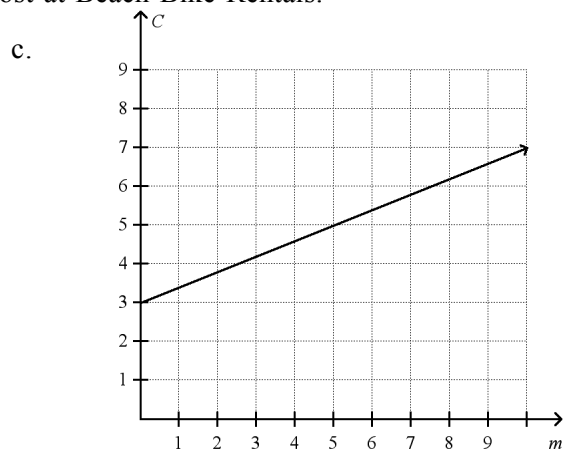
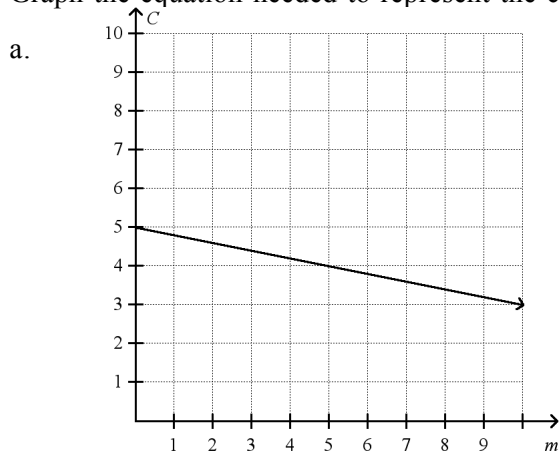
a. $C = 5 + 0.2m$

c. $m = 5 + 0.2C$

b. $C = 0.2 + 5m$

d. $C = 5 + 2m$

4. Graph the equation needed to represent the cost at Beach Bike Rentals.



5. What is the cost of renting a bike and riding 18 miles?

- | | |
|------------|------------|
| a. \$3.60 | c. \$8.60 |
| b. \$41.00 | d. \$11.60 |

Write the point-slope form of an equation for a line that passes through the point with the given slope.

6. $(-1, -2), m = 1$

- | | |
|-----------------------|-----------------------|
| a. $y + 2 = 1(x - 1)$ | c. $y + 2 = -(x + 1)$ |
| b. $y - 2 = 1(x + 1)$ | d. $y + 2 = 1(x + 1)$ |

7. $(1, 2), m = \frac{5}{2}$

- | | |
|---------------------------------|----------------------------------|
| a. $y - 2 = \frac{5}{2}(x - 1)$ | c. $y - 2 = \frac{5}{2}(x + 1)$ |
| b. $y + 2 = \frac{5}{2}(x - 1)$ | d. $y - 2 = -\frac{5}{2}(x - 1)$ |

Write each equation in standard form.

8. $y - 2 = -2(x - 9)$
a. $y = -2x + 20$ c. $2x - y = 20$
b. $2x + y = 20$ d. $2x + y = 16$

Write the equation in slope-intercept form.

9. $y + 3 = 2(x - 1)$
a. $y = 2x - 5$ c. $y = 2x + 5$
b. $y = 2x + 5$ d. $y = -2x - 5$

Write the slope-intercept form of an equation of the line that passes through the given point and is parallel to the graph of the equation.

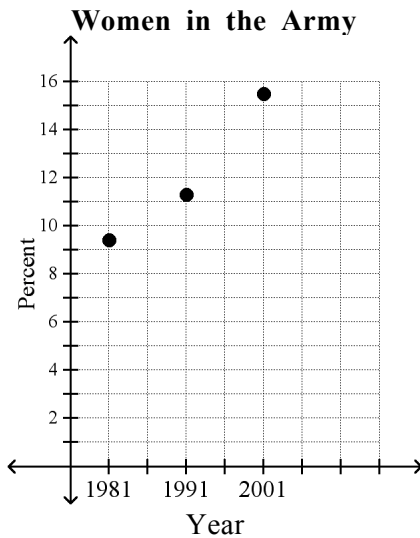
10. $(-3, 5), y = -5x + 3$
a. $y = 10x - 5$ c. $y = -5x + 10$
b. $y = -5x - 10$ d. $y = \frac{1}{5}x - 5$

Write the slope-intercept form of an equation that passes through the given point and is perpendicular to the graph of the equation.

11. $(5, 2), y = x - 5$
a. $y = -x + 7$ c. $y = x + 7$
b. $y = 3x + 1$ d. $y = x + \frac{12}{5}$

Determine whether the graph shows a positive correlation, a negative correlation, or no correlation. If there is a positive or negative correlation, describe its meaning in the situation.

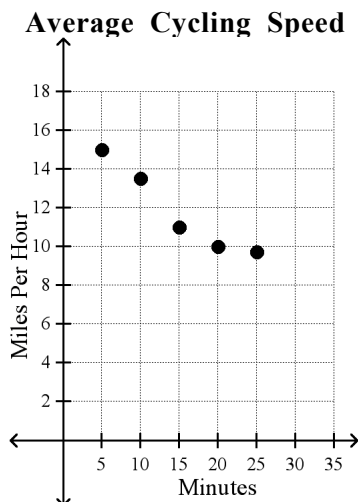
12.



Source: *Time Magazine*, March 24, 2003

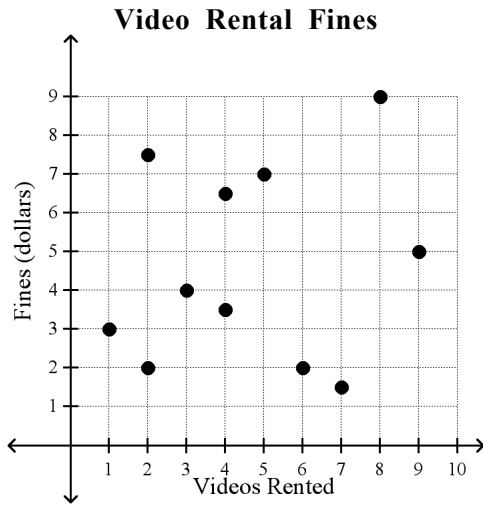
- positive; as time goes on, more women are in the army.
- no correlation
- negative; as time goes on, fewer women are in the army.
- negative; as time goes on, more women are in the army.

13.



- no correlation
- negative; as time passes, speed decreases
- positive; as time passes, speed increases
- positive; as time passes, speed decreases

14.

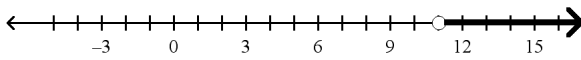


- negative; as the number of videos rented increases, the amount of fine increases.
- negative; as the number of videos rented increases, the amount of fine decreases.
- no correlation
- positive; as the number of videos rented increases, the amount of fine decreases.

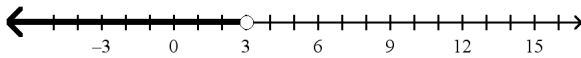
Solve the inequality. Graph the solution on a number line.

15. $k - 7 < 4$

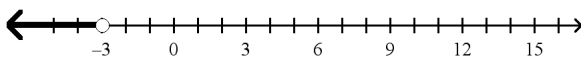
- $k > 11$



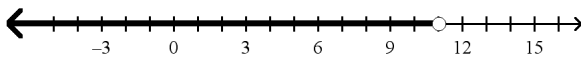
- $k < 3$



- $k < -3$



- $k < 11$



Solve the inequality.

16. $\frac{b}{5} \geq -4$

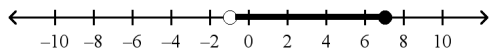
- | | |
|-----------------|-----------------|
| a. $b \geq 1$ | c. $b \geq 20$ |
| b. $b \geq -20$ | d. $b \geq -24$ |

17. $10m \leq 50$
a. $m \leq 500$
b. $m \leq 5$
c. $m \leq 40$
d. $m \geq 5$
18. $2h + 6 > -8$
a. $h > -10$
b. $h > -7$
c. $h < -7$
d. $h > -14$
19. $4a + 3 - 7a > 15$
a. $a > -4$
b. $a > 3$
c. $a < -6$
d. $a < -4$
20. $-2(6z + 9) < -6(2z - 4)$
a. all real numbers
b. \emptyset (No Solution)
c. $-24z < 42$
d. $z < 42$

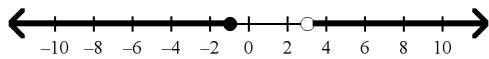
Solve the compound inequality and graph the solution set.

21. $u + 2 \geq 1$ and $u - 4 < 3$

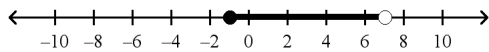
a. $-1 \leq u < 7$



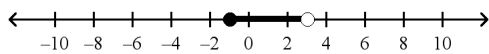
b. $-1 \leq u < 3$



c. $-1 \leq u < 7$

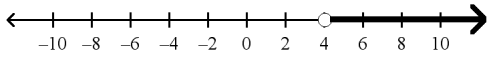


d. $-1 \leq u < 3$

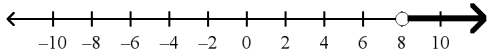


22. $g - 9 > -1$ or $g + 2 > 6$

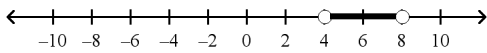
a. $g > 4$



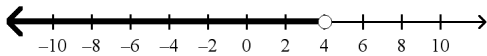
b. $g > 8$



c. $4 < g < 8$



d. $g < 4$



23. Solve $|d - 1| > 6$.

a. $d < -5$ or $d > 7$

c. $-5 < d < 7$

b. $d > 7$

d. $d < -5$

24. At a track meet, the height of John's high jump was within 6 inches of the track record of 76 inches. What is the range of heights for John's jump?

a. $\{x \mid 70 \leq x \leq 82\}$

c. $\{x \mid 70 \leq x\}$

b. $\{x \mid x \leq 70 \text{ or } x \geq 82\}$

d. $\{x \mid x \leq 82\}$

25. The weather reporter said that the previous day's temperatures varied 8° from the normal temperature of 45°F . What was the possible range of temperatures on the previous day?

a. $\{t \mid 41 \leq t \leq 49\}$

c. $\{t \mid 37 \leq t \leq 53\}$

b. $\{t \mid t \leq 41 \text{ or } t \geq 49\}$

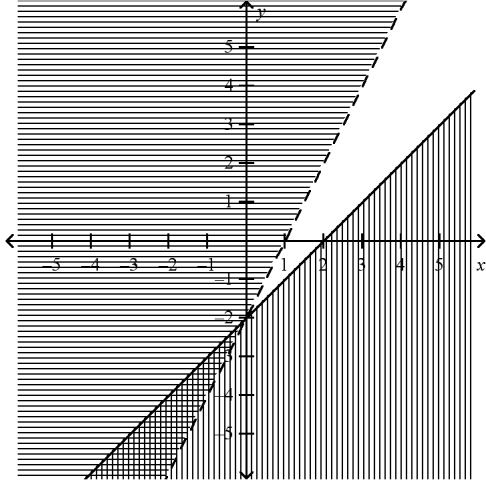
d. $\{t \mid t \leq 37 \text{ or } t \geq 53\}$

Solve the system of inequalities by graphing.

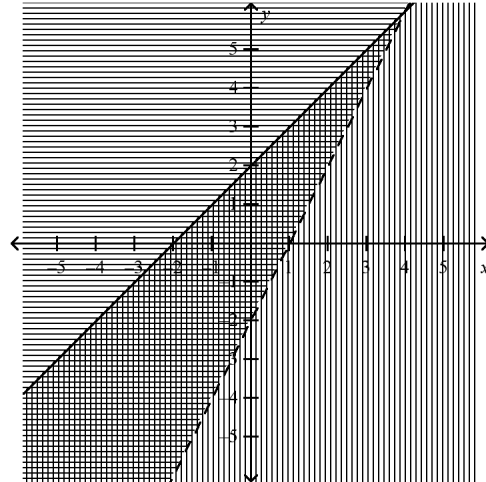
26. $y \leq x + 2$

$y > 2x - 2$

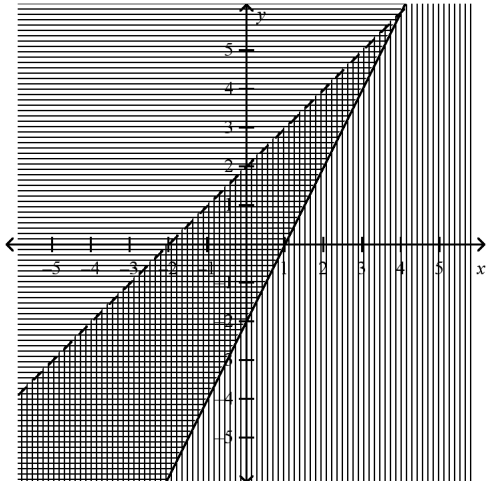
a.



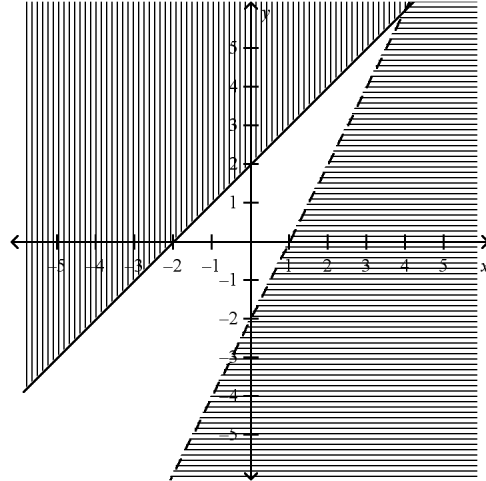
c.



b.



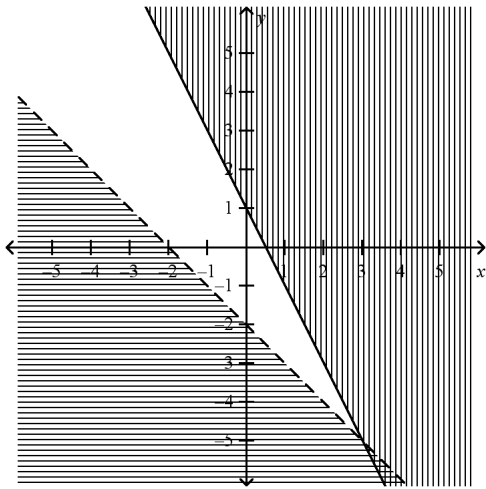
d.



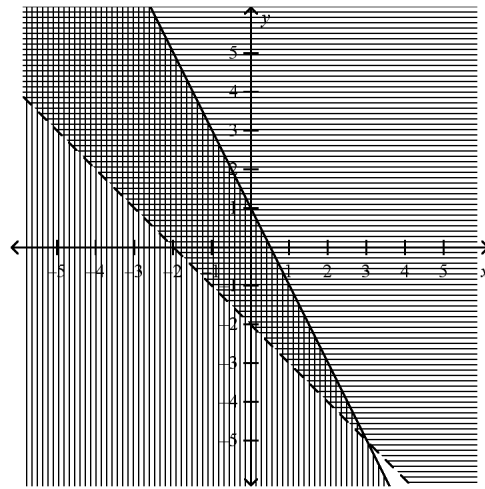
27. $y \leq -2x + 1$

$y > -x - 2$

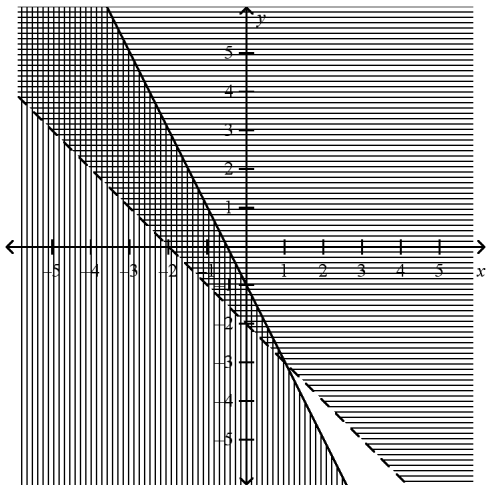
a.



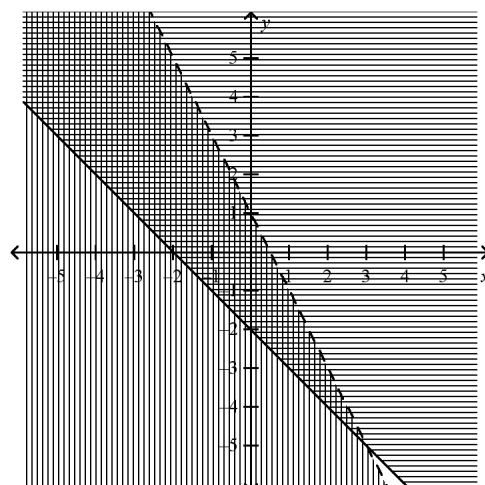
c.



b.



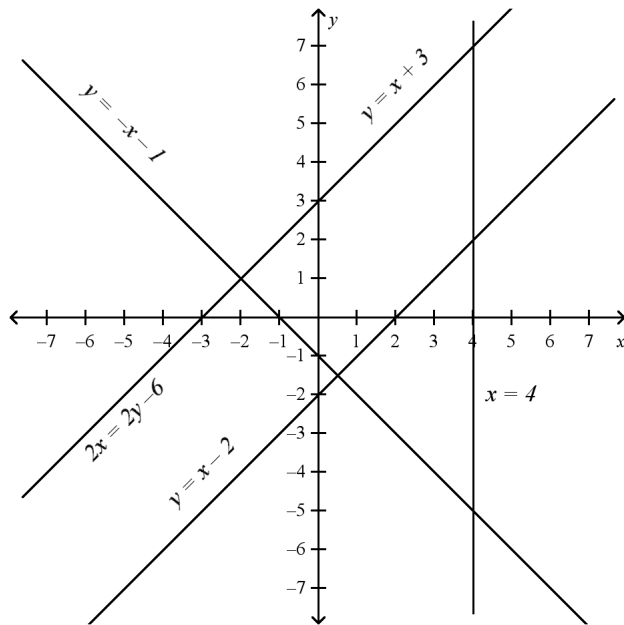
d.



Name: _____

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Use the graph below to determine the number of solutions the system has.



28. $x = 4$

$y = x + 3$

- a. no solution
- b. one

- c. two
- d. infinitely many

29. $2x = 2y - 6$

$y = x + 3$

- a. no solution
- b. one

- c. two
- d. infinitely many

30. $2x = 2y - 6$

$y = x - 2$

- a. no solution
- b. one

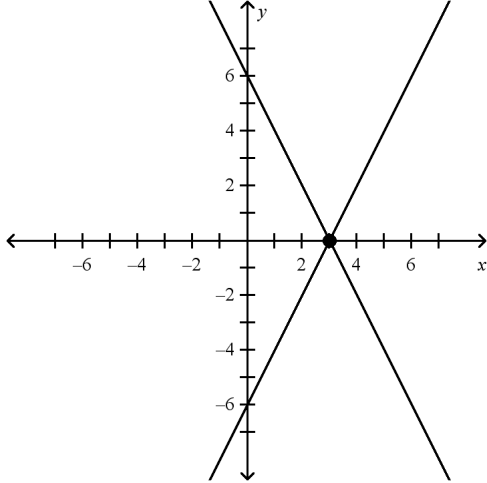
- c. two
- d. infinitely many

Graph the system of equations. Then determine whether the system has no solution, one solution, or infinitely many solutions. If the system has one solution, name it.

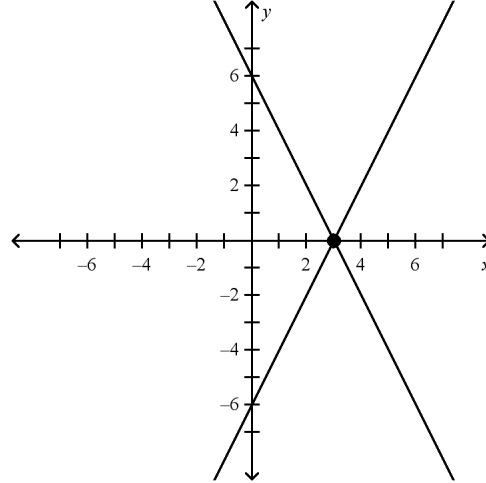
31. $y = -2x + 6$

$y = 2x - 6$

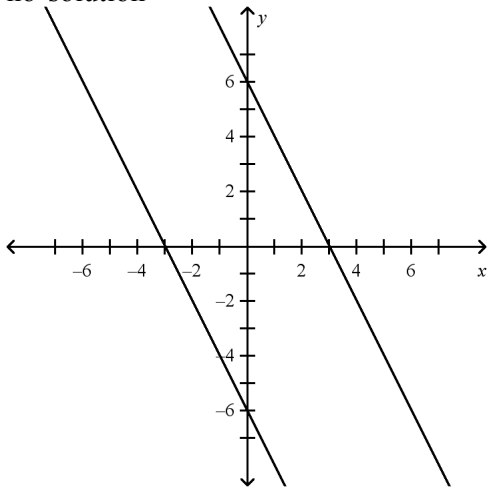
a. one solution; $(0, 3)$



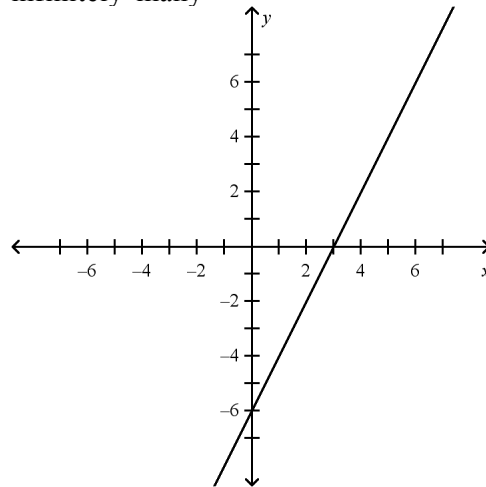
c. one solution; $(3, 0)$



b. no solution



d. infinitely many



Use substitution to solve the system of equations.

32. $y = x + 10$

$2x - 3y = 0$

a. $(0, 10)$

b. $(-30, -20)$

c. $(-20, -30)$

d. $(30, 40)$

33. $2 = x - 2y$

$-x + 8 = -y$

- a. infinitely many solutions c. $(-2, -2)$
b. $(14, 6)$ d. $(-10, -6)$

34. The sum of two numbers is 90. Their difference is 12. What are the numbers?

- a. no solution c. 35 and 47
b. 31 and 59 d. 39 and 51

35. Joji earns 3 times as much as Masao. If Joji and Masao earn \$4500.00 together, how much money does Masao earn?

- a. \$1125.00 c. \$1500.00
b. \$3375.00 d. \$1000.00

36. Dakota's math test grade was 7 points less than his science test grade. The sum of the grades was 183%. What did Dakota get on his math test?

- a. 83% c. 93%
b. 88% d. 95%

Use elimination to solve the system of equations.

37. $-2x - 6y = 10$

$4x + 6y = -2$

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

38. $-2x + 5y = -8$

$2x + 7y = 8$

- a. $(4, 0)$ c. $(-24, 8)$
b. $(24, -8)$ d. $(-4, 0)$

39. $-2x + 5y = -10$

$-2x + 4y = 10$

- a. $(-5, 0)$ c. $(45, 20)$
b. $(-45, -20)$ d. $(5, 0)$

40. $-7x - 3y = 10$

$9x - 3y = -6$

- a. $(1, 1)$ c. $(-2, -8)$
b. $(-1, -1)$ d. $(2, 8)$

41. $-6x - 2y = 10$

$-10x + 6y = -2$

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

42. $4x - 2y = 4$
 $-9x + 3y = 6$
 a. $(0, -2)$ c. $(0, 2)$
 b. $(-10, -4)$ d. $(-4, -10)$
43. The cost of 3 large candles and 5 small candles is \$6.40. The cost of 4 large candles and 6 small candles is \$7.50. Which pair of equations can be used to determine, t , the cost of a large candle, and s , the cost of a small candle?
 a. $3t + 5s = 6.4$ c. $3t + 5s = 6.4$
 $4t + 6s = 7.5$ $t + s = 7.5$
 b. $t + s = 6.4$ d. $5t + 3s = 6.4$
 $4t + 6s = 7.5$ $6t + 4s = 7.5$

Determine the best method to solve the system of equations. Then solve the system.

44. $7x - 2y = 8$
 $5x + 2y = 4$
 a. elimination using subtraction; $(2, -3)$
 b. elimination using addition; $(\frac{-1}{2}, 1)$
 c. elimination using subtraction; $(-3, 2)$
 d. elimination using addition; $(1, \frac{-1}{2})$
45. $x = 2y - 1$
 $3x - 3y = 9$
 a. substitution; $(7, 4)$
 b. elimination using multiplication; $(3, 2)$
 c. substitution; $(4, 7)$
 d. elimination using multiplication; $(-21, -10)$
46. Sam's test score is 12.5 more than Nicole's score. The sum of twice Sam's score and three times Nicole's score is 195. What are Sam and Nicole's test scores?
 a. Sam's score: 46.5; Nicole's score: 59
 b. Sam's score: 21.5; Nicole's score: 34
 c. Sam's score: 34; Nicole's score: 46.5
 d. Sam's score: 46.5; Nicole's score: 34

Simplify. Assume that no denominator is equal to zero.

47. $(a^5 b^5)(a^5 b^3)$
 a. $a^9 b^8$ c. $a^9 b^{15}$
 b. $a^6 b^8$ d. $a^6 b^{15}$

48. $(4g^3h^4)^3$

a. $125g^9h^{12}$ c. $125g^6h^7$
b. $15g^6h^7$ d. $15g^9h^{12}$

49. $\frac{3^{11}}{3^3}$

a. 3^3 c. 3^8
b. 1^8 d. 3^{-8}

50. $\frac{(2a^5b)^2}{24b^4}$

a. $\frac{a^9}{12b^1}$ c. $\frac{a^9}{3b^1}$
b. $\frac{a^6}{3b^1}$ d. $\frac{a^9b^1}{3}$

51. $\frac{20m^{-3}n^6}{2mn^{-2}p^{-3}}$

a. $\frac{10n^8p^3}{m^4}$ c. $\frac{10n^4p^3}{m^2}$
b. $\frac{10n^8}{m^4p^3}$ d. $\frac{10m^4}{n^8p^3}$

Express the number in scientific notation.

52. 0.00241

a. 24.1×10^{-4} c. 2.41×10^{-3}
b. 241.0×10^{-5} d. 0.241×10^{-2}

53. 352×10^{-6}

a. 35.2×10^{-5} c. 0.352×10^{-3}
b. 3.52×10^{-8} d. 3.52×10^{-4}

Express the number in the statement in standard notation.

54. In 2001, the United States Postal Service employed 7.76×10^5 people.

a. 77,600 c. 7,760,000
b. 776,000 d. 77,600,000

Name: _____

ID: A

Evaluate. Express the result in scientific notation.

55. $(7.5 \times 10^3)(5 \times 10^5)$

a. 3.7×10^8

b. 37×10^7

c. 0.37×10^9

d. 3.7×10^6

56. $\frac{42 \times 10^5}{4 \times 10^{-3}}$

a. 1.05×10^7

b. 10.5×10^8

c. 0.105×10^{10}

d. 1.05×10^9