

**Foundations of Math 1****Final Exam Review Spring 2019****Unit 1 Solving Equations**

1. Which pair of terms are like terms?

a.  $-5, -2x$

b.  $8a, 2b$

c.  $10x^2, -3x$

d.  $25g^3, -17g^3$

2. Solve the equation:  $5(y + 7) = 65$

3. Solve the equation:  $\frac{x+8}{2} = \frac{5}{12}$

4. Solve the equation:  $-5d = 25$

5. Solve the equation:  $-6 = \frac{x}{8} + 4$

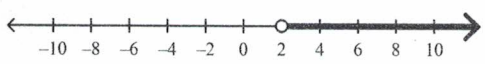
6. Solve the equation:  $\frac{3}{4}x - 5 = -3$

7. Solve the equation:  $19 = -d + 14$

8. Solve the equation:  $3p - 1 = 5(p - 1) - 2(7 - 2p)$

9. Solve the equation:  $8d + 4d - 5d + 7 = 4d$
10. Solve the equation:  $\frac{10}{12} = \frac{19}{x}$
11. Solve the equation for  $a$ .  
 $4a + 2 = 3b - 5$
12. School guidelines require that there must be at least 2 chaperones for every 25 students going on a school trip. How many chaperones must there be for 61 students?
13. John and 3 friends are going out for pizza for lunch. They split one pizza and 4 large drinks. The pizza cost \$12.50. After using a \$4.00 gift certificate, they spend a total of \$13.70. Write an equation to model this situation, and find the cost of one large drink.

## Unit 2 Solving Inequalities

14. Write the inequality in words.  $5n - 10 > 26$
15. Graph the inequality:  $x \geq 3$
16. Write an inequality for the graph.
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17. Solve the inequality. Then graph your solution.  $a - 2 \leq 6$

18. Solve the inequality. Then graph your solution.  $6 + 9n \geq 8(n + 6)$

19. Solve the inequality. Then graph your solution.  $h + 6 - 2(h - 18) > 0$

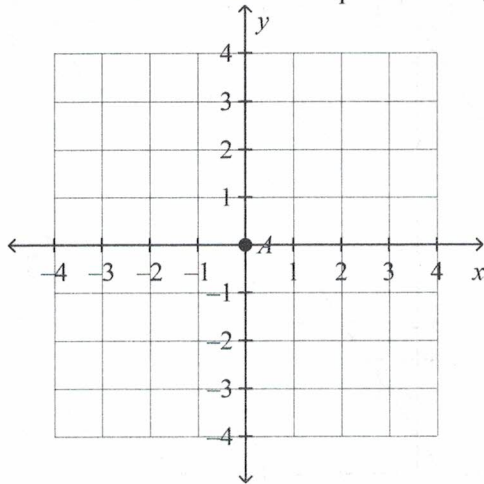
### Unit 3 Linear Functions and Equations

20.  $Ax + By = C$  is what form of a linear equation?

21.  $y - y_1 = m(x - x_1)$  is what form of a linear equation?

22.  $y = mx + b$  is what form of a linear equation?

23. What are the coordinates of point  $A$ ?



24. Find the slope of the line that passes through the pair of points.  $(2, 7), (8, 3)$

25. A student finds the slope of the line between  $(9, 12)$  and  $(18, 6)$ . She writes  $\frac{12-6}{18-9}$ . What mistake did she make?

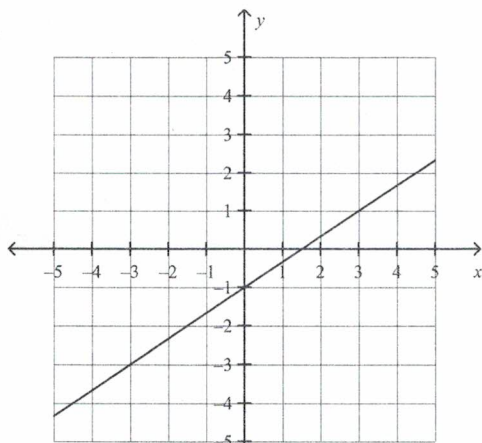
26. Write an equation of a line with the given slope and  $y$ -intercept.  $m = -\frac{2}{3}, b = \frac{4}{5}$

27. Find the slope and  $y$ -intercept of the line.  $4x + 10y = 80$

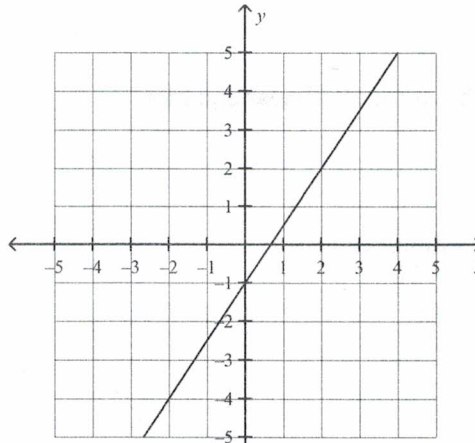
28. Use the slope and  $y$ -intercept to graph the equation.

$$y = \frac{2}{3}x - 1$$

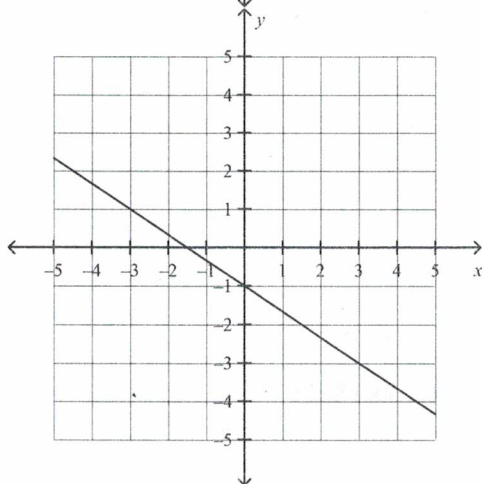
a.



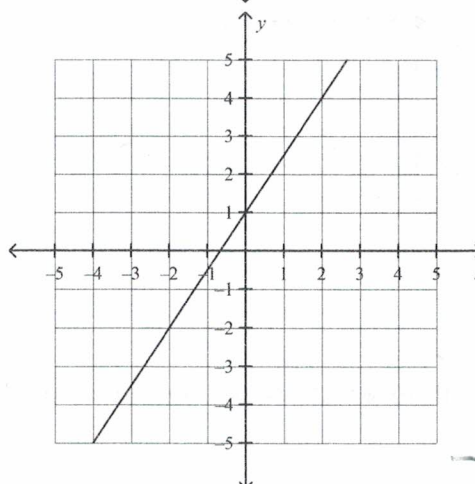
c.



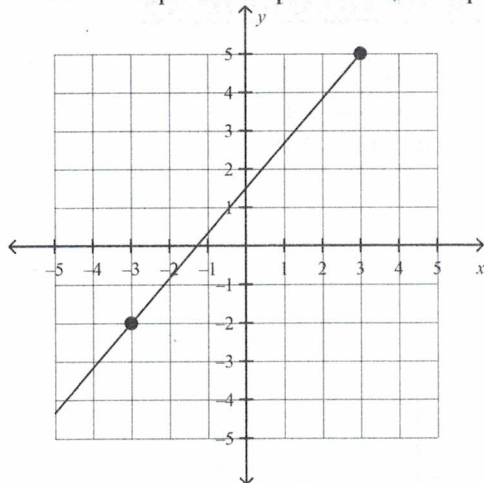
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29. Write the slope-intercept form of the equation for the line.



30. Write an equation of a line that has the same slope as  $2x - 5y = 12$  and the same  $y$ -intercept as  $4y + 24 = 5x$ .

31. Write an equation in point-slope form for the line through the given point with the given slope.

$(6, -8); m = -\frac{1}{2}$

32. A line passes through  $(-7, -5)$  and  $(-4, -1)$ .
- Write an equation for the line in point-slope form.
  - Rewrite the equation in standard form using integers.

33. Find the  $x$ - and  $y$ -intercept of the line.  $x + 10y = 90$

34. Are the graphs of the lines in the pair parallel? Explain.  $y = -\frac{12}{5}x + 10$   
 $-12x - 5y = 14$

## Unit 4 Systems of Equations and Inequalities

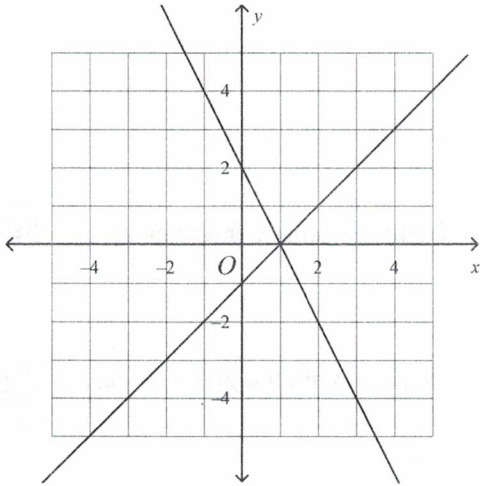
35. Which ordered pair, if any, is a solution to the system of equations?
- $$y = -2x + 5$$
- $$y = -4x - 1$$
- a. (2, -9)                      b. (-1, 7)                      c. (-3, 11)                      d. (11, -3)

36. Which graph represents the following system of equations?

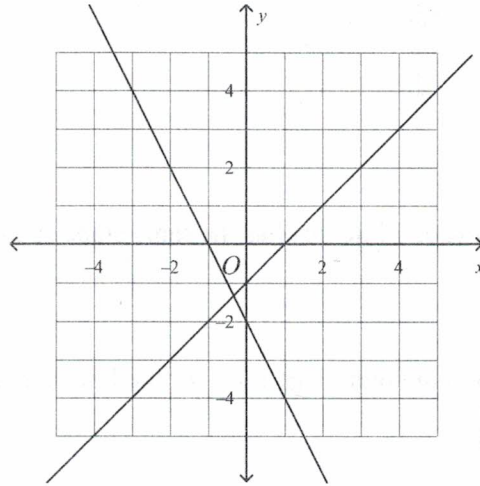
$$y = -2x + 2$$

$$y = x - 1$$

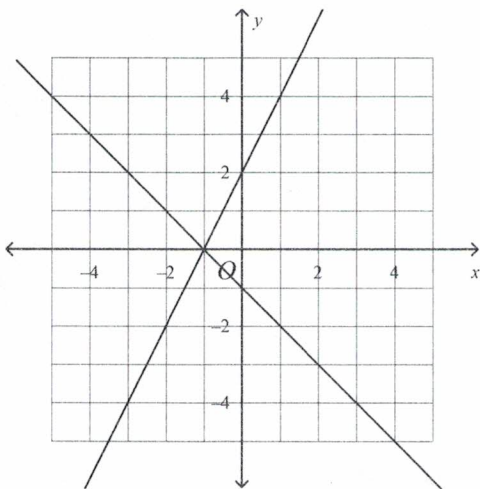
a.



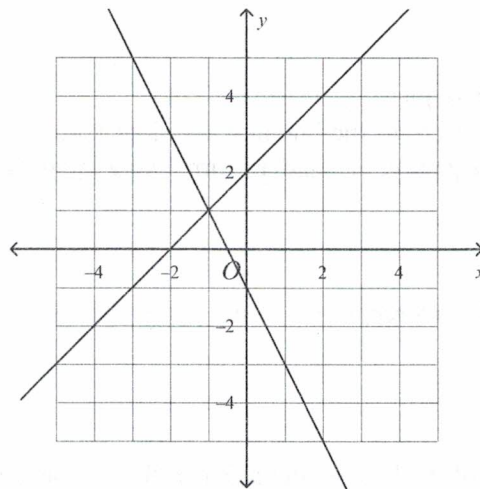
c.



b.

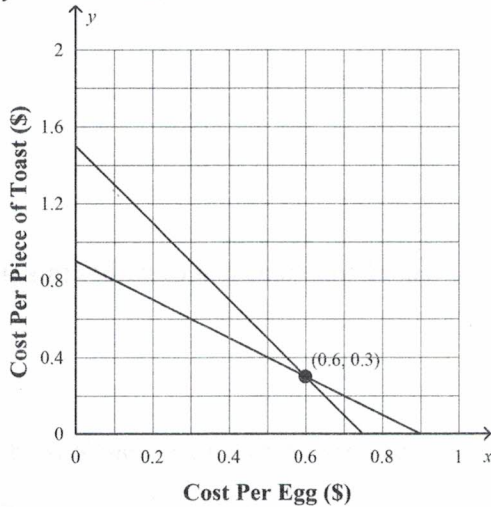


d.



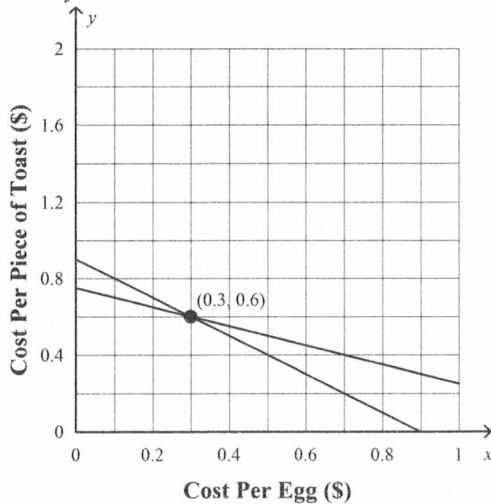
37. Kendra owns a restaurant. She charges \$1.50 for 2 eggs and one piece of toast, and \$.90 for one egg and one piece of toast. Write and graph a system of equations to determine how much she charges for each egg and each piece of toast. Let  $x$  represent the number of eggs and  $y$  the number of pieces of toast.

a.  $y = -x + 0.90$   
 $y = -2x + 1.50$



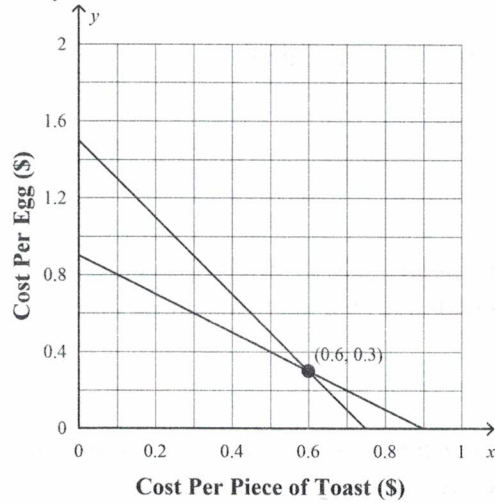
\$0.60 per egg, \$0.30 for toast

b.  $x + y = 0.90$   
 $x + 2y = 1.50$



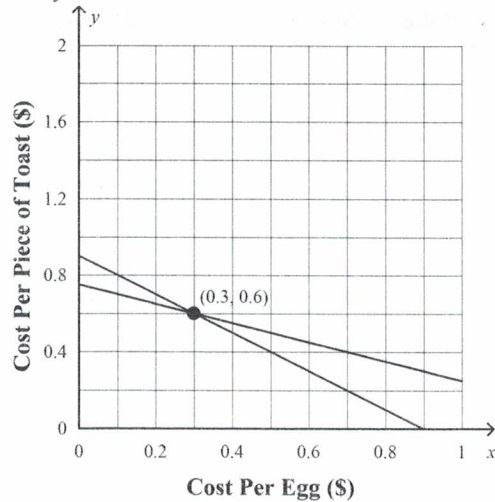
\$0.30 per egg, \$0.60 for toast

c.  $2x + y = 1.50$   
 $x + y = 0.90$



\$0.30 per egg, \$0.60 for toast

d.  $2x + y = 1.50$   
 $x + y = 0.90$



\$0.60 per egg, \$0.30 for toast

38. Solve the system of equations using substitution.

$y = 2x + 7$

$y = 3x$

39. Solve the system using elimination.

$$x + 2y = -7$$

$$5x + 8y = -33$$

40. Solve the system using elimination.

$$3x + y = 15$$

$$2x - y = 5$$

41. The sum of two numbers is 78. Their difference is 26. Write a system of equations that describes this situation. Solve by elimination to find the two numbers.

42. The length of a rectangle is 9 cm more than four times the width. If the perimeter of the rectangle is 58 cm, what are its dimensions?

43. Find a solution of the system of linear inequalities.

$$1.4x + 7y \geq 21$$

$$10x - 2y \geq 16$$

a. (4, 1)

b. (2, 2)

c. (1, 2)

d. (5, 2)

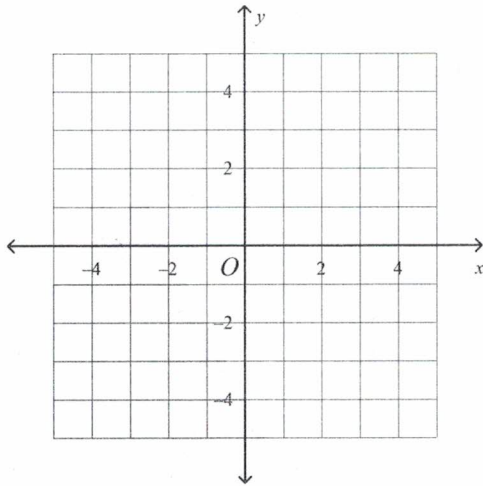


44. Solve the system of linear inequalities by graphing.

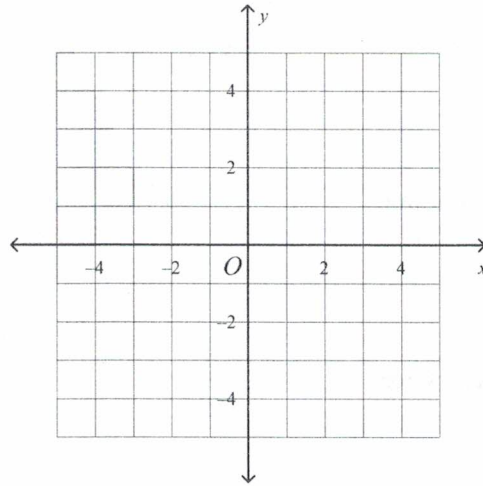
$$y \leq x + 4$$

$$2x + y \leq -4$$

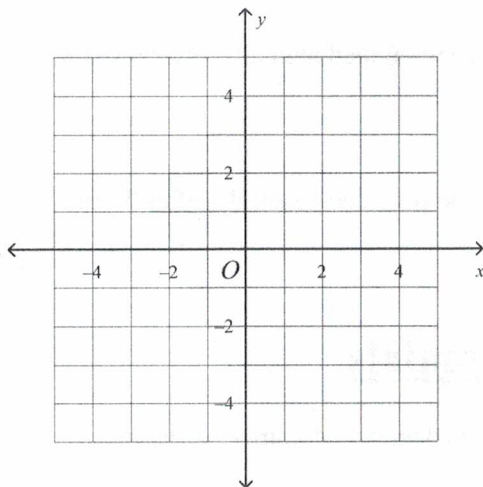
a.



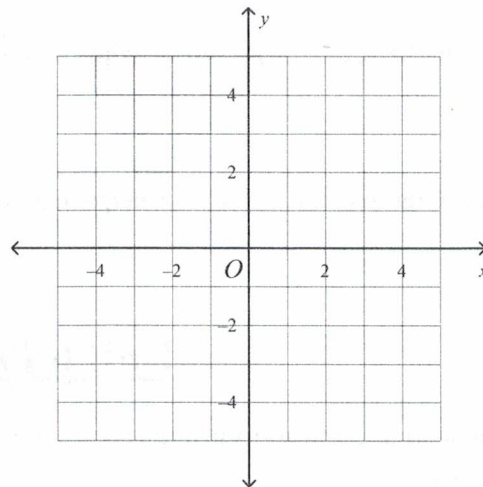
c.



b.



d.



## Unit 5 Exponents & Exponential Functions

45. Simplify the expression  $(-7k^4) \cdot 5j^{10} \cdot 4k^5$

46. Simplify the expression.  $(3xy^3)^2(xy)^6$

Name: \_\_\_\_\_

ID: A

47. Simplify the expression:  $8c^6d^{-2}$

48. Simplify the expression:  $(x^{-6})^3$

49. Simplify the expression:  $(x^9)^0(x^7)^2$

50. Simplify the expression:  $\frac{x^5y^{-5}}{x^3y^{-3}}$

51. Find the balance in the account. \$4,200 principal earning 5%, compounded annually, after 4 years

52. Find the balance in the account. \$4,100 principal earning 7%, compounded quarterly, after 7 years

## Unit 6 Polynomials

53. Write the polynomial in standard form and classify it based on its degree and number of terms.

$$5g - 3g^3 + 10g^2 - 8$$

54. Simplify  $(7w^2 - 5w - 8) - (8w^2 + 4w - 3)$

55. Simplify:  $\frac{1}{3}n(-6 + 27m - 51p)$

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56. Simplify  $(8p - 1)(8p + 1)$

57. Simplify  $3p^4(4p^4 + 7p^3 + 4p + 1)$

58. Simplify  $(2x - 6)(4x - 5)$

59. Simplify  $(3k + 4)(3k^2 - 5k - 3)$

60. Simplify  $(3m + 8)^2$

61. Factor the expression.  $6x^2 + 5x + 1$

62. Factor the expression.  $36g^2 + 5g - 24$

63. Factor the expression.  $96y^2 - 140y - 196$

64. Factor the expression.  $49b^2 + 112b + 64$

65. Factor the expression.  $9b^2 - 64$