

Test 1-3 Review
Systems of Inequalities and Equations

Name _____

Per _____ Date _____

1. The Junior ROTC is selling American flags for a fundraiser. Dixie Flags charges \$0.20 per flag plus a one-time set up fee of \$20. Fiesta Flags charges \$0.30 per flag and a set up fee of \$15. How many flags have to be bought for the charges to be the same? Write and solve a system of equations that represents this situation. **Explain your solution using complete sentences.**
2. At Home Depot, Max buys 3 cans of paint, 2 paintbrushes and 4 rollers for \$72.25. Kim buys 12 cans of paint, 2 paint brushes and 10 rollers \$242.86. Carol pays \$55.87 for 2 cans of paint, 7 rollers, and 1 paintbrush. Write and solve a system of equations that represent this situation. **Explain your solution using complete sentences.**

Graph the given systems of inequalities. Determine if (3, 2) and (- 5, - 3) are solutions to both systems.

3. $y \leq \frac{1}{3}x + 5$

(3, 2)? YES/NO

(-5, -3)? YES/NO

$2x - y \geq -1$

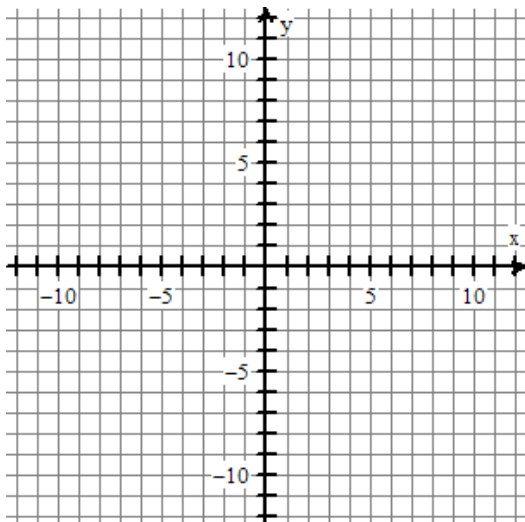
4. $2x + 5y < 25$

$y \leq 3x - 2$

$5x - 7y < 14$

(3, 2)? YES/NO

(-5, -3)? YES/NO



5. Solve each system. You must use each method once! (substitution, elimination, & Matrices).

a) $\frac{1}{2}x + \frac{1}{6}y = -\frac{4}{3}$

$$\frac{1}{4}x - y = -5$$

Solve by **matrix**

b) $3x + 4y = 18$

$$6x + 8y = 18$$

Solve by **elimination**

c) $5x + y = -40$

$$2x - 5y = 11$$

Solve by **substitution**

d) $x + y + z = -3$

$$2x - 3y + z = 9$$

$$4x - 5y + 2z = 16$$

Solve by **matrix**

6. At a coffee shop bagels cost \$1.50, and muffins cost \$2.50 each. A customer bought twice as many bagels as muffins and spent a total of \$16.50. How many of each did she buy?

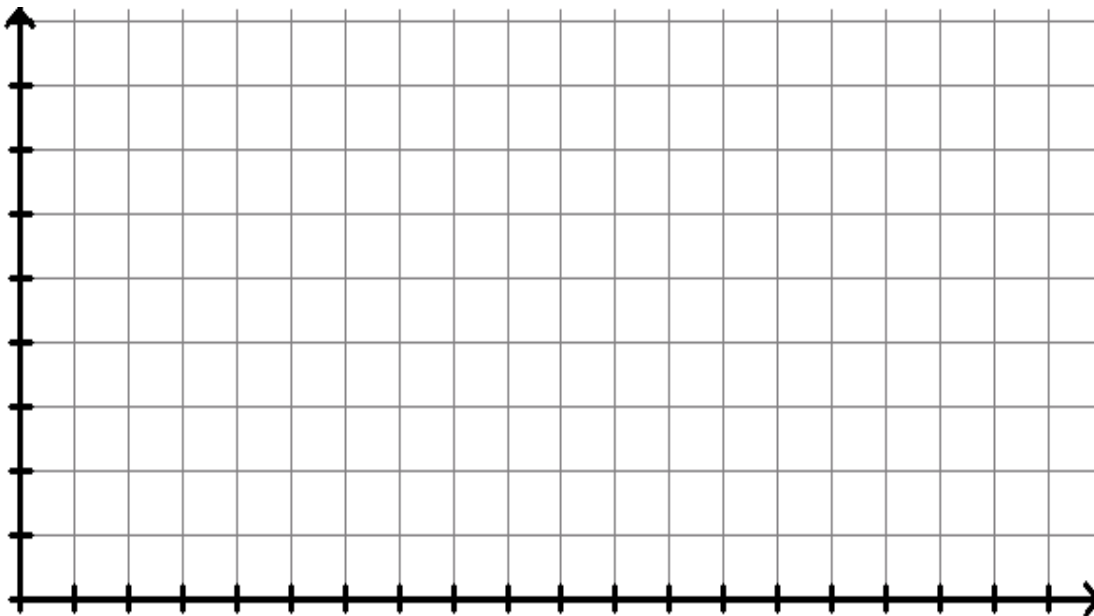
7. Luisa spent \$64 total for 2 different skirts. The difference between costs of the skirts was \$20. What was the cost of each skirt?

8. Andrea has 55 coins in dimes and quarters. The total value of the coins is \$8.50. How many of each coin does she have?

9. The DECA members are baking cookies for the DECA Bake Sale where they sell chocolate chip cookies and oatmeal cookies. They sold 20 dozen chocolate chip cookies for \$52.50 and 40 dozen oatmeal cookies for \$84.00. To sell each cookie, DECA has to purchase ingredients. The ingredient cost for chocolate chip cookies is \$15.00 where as the ingredient cost for oatmeal cookies is \$10.00. How many dozens of each cookie would DECA need to sell for them to make the same amount of money?

Write the system of equations to represent the profit made off each type of cookie.
(Profit = Income - Cost)

a. Graph the systems with labels.



b. How many of each type of cookies should DECA bake in order to make the same amount of money from each kind of cookie? Show your work!!!

10. Hector's service club is raising money by wrapping presents in the mall. The function $f(x) = 3x$ describes the amount of money (\$3 per gift) the club will earn for wrapping x presents. They only have enough wrapping paper to wrap 1000 presents.

a. Describe the independent variable for this problem.

b. Describe what the domain and range represent (use units).

Domain:

Range:

c. What does each value in the ordered pair (150, 450) mean in context of this problem?

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11-18. Evaluate each expression using the values given in the table:

x	-5	-4	-3	-2	-1	0	1	2	3	4	5
f(x)	-7	-2	-9	-6	0	2	4	-1	-7	-5	-4
g(x)	12	8	4	-1	3	-5	-7	0	3	6	11

11. $f(g(-3))$

12. $g(f(4))$

13. $g(g(2))$

14. $f(f(5))$

15. $(g \circ g)(-2)$

16. $(f \circ g)(-1)$

17. $(f \circ f)(0)$

18. $(g \circ f)(-4)$

19-26. Evaluate the compositions of functions below. Solve when necessary.

$$f(x) = x + 4 \text{ and } g(x) = 2x - 3$$

19. $f(g(x)) =$

20. $f\left(g\left(\frac{9}{2}\right)\right) =$

21. $g(f(x)) =$

22. $g\left(f\left(-\frac{3}{2}\right)\right) =$

$$f(x) = x + 1 \text{ and } g(x) = x^2 + 4$$

23. $f(g(x)) =$

24. $f(g(-5)) =$

25. $g(f(x)) =$

26. $g(f(4)) =$

