

Test 1-3 Review
Systems of Inequalities and Equations

Name Key
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.

$x = \# \text{ of flags}$
 $y = \text{cost for flags}$

$2x + 20 = y$
 $3x + 15 = y$

Both Dixie Flags & Fiesta Flags charge \$30 for 150 flags

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.

$3p + 2b + 4r = 72.25$
 $12p + 2b + 10r = 242.86$
 $2p + 1b + 7r = 55.87$

At Home Depot paint cans cost \$17.49, paint brushes cost \$5.49, and rollers cost \$2.20

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. $2x + 5y < 25$

$y \leq 3x - 2$

$5x - 7y < 14$

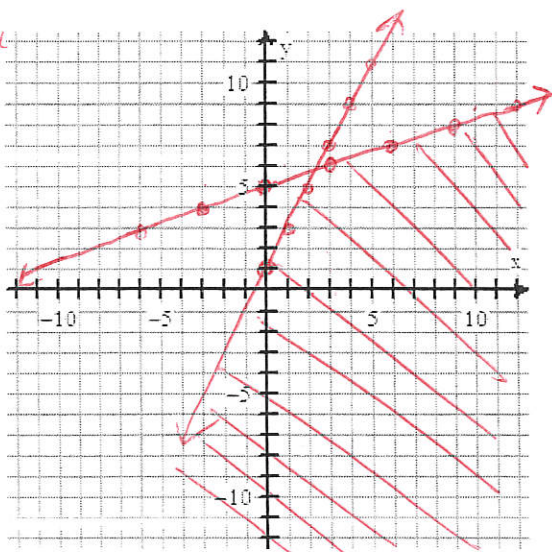
(3, 2)? YES/NO

(-5, -3)? YES/NO

$2x - y \geq -1$
 $-2x$ $-2x$

$-y \geq -1 - 2x$
 $\frac{-y}{-1} \geq \frac{-1 - 2x}{-1}$

$y \leq 1 + 2x$



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?

$$q + d = 55$$

$$.25q + .1d = 8.5$$

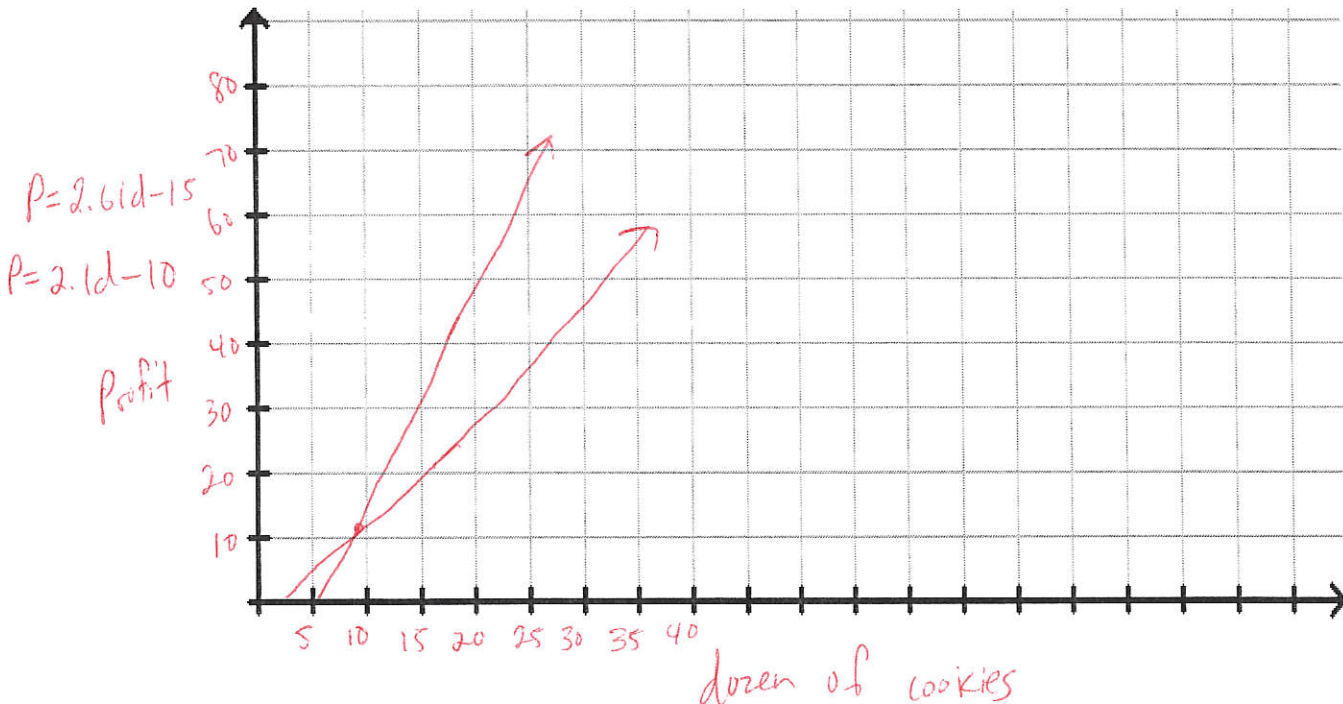
Andrea has 20 quarters
and 35 dimes

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)

Choc. chip	$\frac{52.50}{20}d - 15$	for 20 dozen		Oatmeal	$\frac{84}{40}d - 10$	for 40 dozen
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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!!!

≈ 9.8 dozen \$10.58 is where lines cross

118 cookies (would not sell or bake partial cookie)

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

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

$$19. f(g(x)) = 2x - 3 + 4$$

$$= 2x + 1$$

or plug in
 $9/2$

$$20. f\left(g\left(\frac{9}{2}\right)\right) = 10$$

$$g\left(\frac{9}{2}\right) = 2\left(\frac{9}{2}\right) - 3$$

$$g\left(\frac{9}{2}\right) = 6$$

$$f(6) = 10$$

$$21. g(f(x)) = 2(x+4) - 3$$

$$2x + 8 - 3$$

$$2x + 5$$

plug in
 $-3/2$

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

$$2x + 5$$

$$2\left(-\frac{3}{2}\right) + 5$$

$$-3 + 5$$

$$= 2$$

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

$$23. f(g(x)) = x^2 + 5$$

$$x^2 + 4 + 1$$

$$x^2 + 5$$

$$24. f(g(-5)) = 30$$

$$x^2 + 4 + 1$$

$$(-5)^2 + 4 + 1$$

$$25 + 4 + 1$$

$$25. g(f(x)) = (x+1)^2 + 4$$

$$(x+1)^2 + 4$$

$$26. g(f(4)) = 29$$

$$(4+1)^2 + 4$$

$$5^2 + 4$$

$$25 + 4$$