Name: _____ Date: _____

| **Learning Goal 7.2** | Solve systems of linear equations by substitution. |
|---|---|

**Warmup** For each of the following equations, isolate the variable indicated.

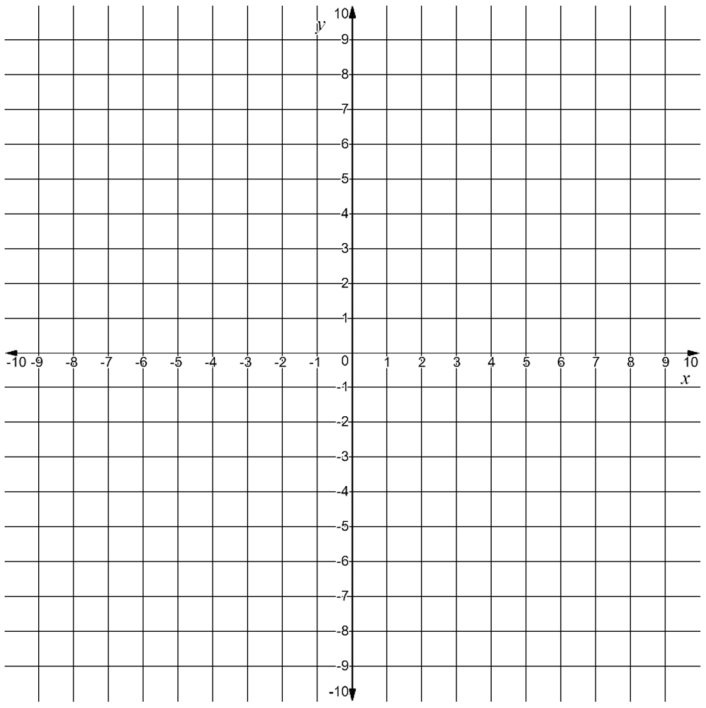
a. For $y$.
$$2x + y = 24$$

b. For $a$.
$$4a - 3c + 20 = 0$$

c. For $f$.
$$4e - 3f = \frac{7}{5}$$

Evaluate $12n^2 - 7n$ for $n = -3$.

**Example** Solve by graphing
$$y = 2x + 1$$
$$3x - 4y = 11$$




How easy was it to graph the linear system by hand? Explain.

Is your solution an exact value or an approximation?

Solve the system using Desmos. Compare your results to what you got graphing by hand.

**Solving Linear Systems by Substitution**

**Example** Solve by substitution

a. $y = 2x + 1$
$3x - 4y = 11$
(this is the same example as in our warmup.)

b. $2x + y = 4$
$3x + 2y = 3$

c. $3y + 2x = 5$
$x - 4y = -14$

**Example** Chris has $3.85 in dimes and quarters. There are 25 coins in all. How many of each type of coin does he have? You may use the table below to organize the information then solve the system algebraically.

| | Value of one coin | Number of coins | Value of coins |
|---|---|---|---|
| First Guess | | | |
| Second Guess | | | |
| Total | | | |