INTRODUCTION TO SYSTEMS OF EQUATIONS

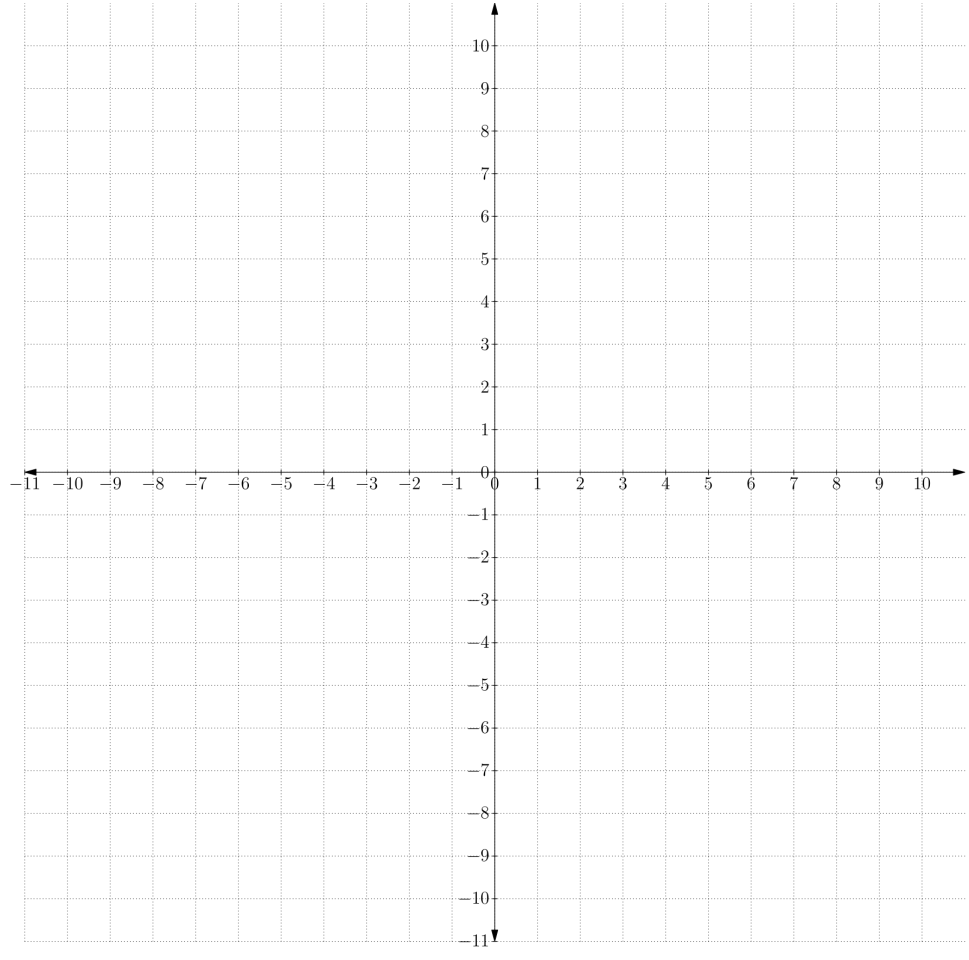
LEARNING GOAL

1. I can solve systems of linear equations using the **substitution** method.

Example 1

x and y are real numbers that satisfy $2x = 50$ and $x + y = 40$. What is the value of y?

- 10
- 25
- 5
- 20
- 15



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SUBSTITUTION METHOD

1. solve one of the equations by isolating one of the variables
2. **substitute** the solution from step one into the other equation(s) to reduce the number of variables by 1;
3. repeat until we are left with a single variable, and solve for it;
4. substitute the solved values back into the equations;
5. state the complete solution.

Example 2: Solve the system of equations

$$2x + y = 4$$
$$3x + 2y = 7$$

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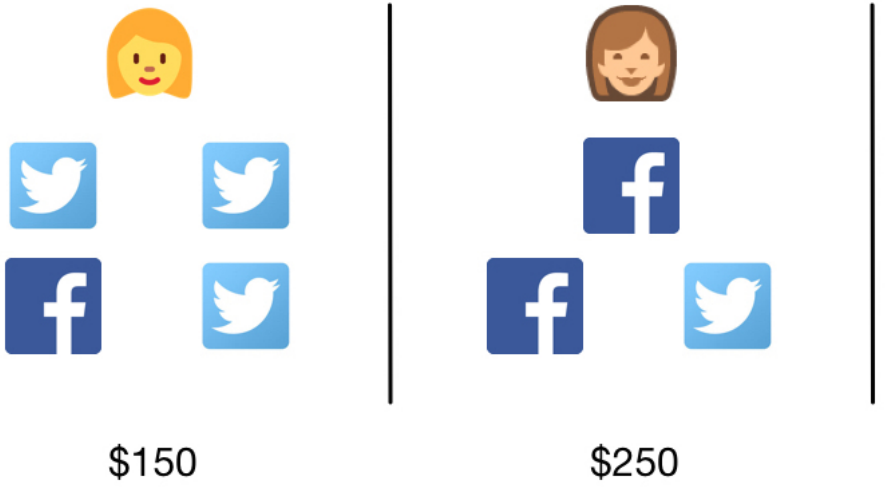
Example 3



$150 $250 $?

- $350
- $360
- $370
- Unable to determine

Alice has 1 Facebook stock and 3 Twitter stocks, and her portfolio is worth $150.
Brenda has 2 Facebook stocks and 1 Twitter stock, and her portfolio is worth $250.
Candice has 3 Facebook stocks and 1 Twitter stock. How much is her portfolio worth?

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Exercise 1

x and y are real numbers that satisfy $2x = 50$ and $x + y = 40$. What is the value of y?

- 10
- 25
- 5
- 20
- 15

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Exercise 2

Solve the following system of equations:

$$\begin{cases} 2x + y = 7 \\ 4x - y = 5. \end{cases}$$

- ◯ $x = 1, y = 5$
- ◯ $x = 2, y = 3$
- ◯ $x = 3, y = 7$
- ◯ $x = 3, y = 1$

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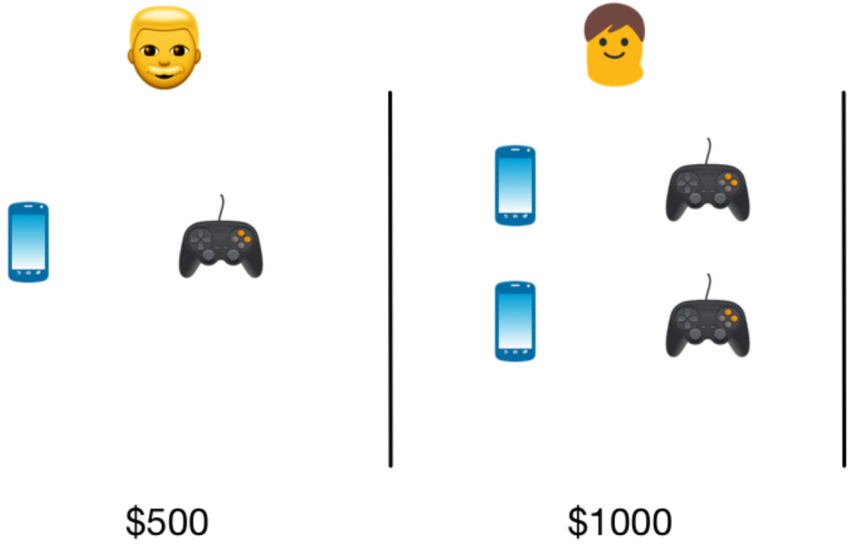
Exercise 3



- ○ $600
- ○ $700
- ○ $800
- ○ Unable to determine

On Black Friday, Joel bought 1 phone and 1 PS4 for $500, and Kelvin bought 2 phones and 2 PS4's for $1000. Linus bought 2 phones and 1 PS4.

Can we determine how much Linus paid?

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