

Lesson 17 Practice Problems

1. Here is a system of equations:
$$\begin{cases} 3x - y = 17 \\ x + 4y = 10 \end{cases}$$

- Solve the system by graphing the equations (by hand or using technology).
- Explain how you could tell, without graphing, that there is only one solution to the system.

2. Consider this system of linear equations:
$$\begin{cases} y = \frac{4}{5}x - 3 \\ y = \frac{4}{5}x + 1 \end{cases}$$

- Without graphing, determine how many solutions you would expect this system of equations to have. Explain your reasoning.
- Try solving the system of equations algebraically and describe the result that you get. Does it match your prediction?

3. How many solutions does this system of equations have? Explain how you know.

$$\begin{cases} 9x - 3y = -6 \\ 5y = 15x + 10 \end{cases}$$

4. Select **all** systems of equations that have no solutions.

A. $\begin{cases} y = 5 - 3x \\ y = -3x + 4 \end{cases}$

B. $\begin{cases} y = 4x - 1 \\ 4y = 16x - 4 \end{cases}$

C. $\begin{cases} 5x - 2y = 3 \\ 10x - 4y = 6 \end{cases}$

D. $\begin{cases} 3x + 7y = 42 \\ 6x + 14y = 50 \end{cases}$

E. $\begin{cases} y = 5 + 2x \\ y = 5x + 2 \end{cases}$

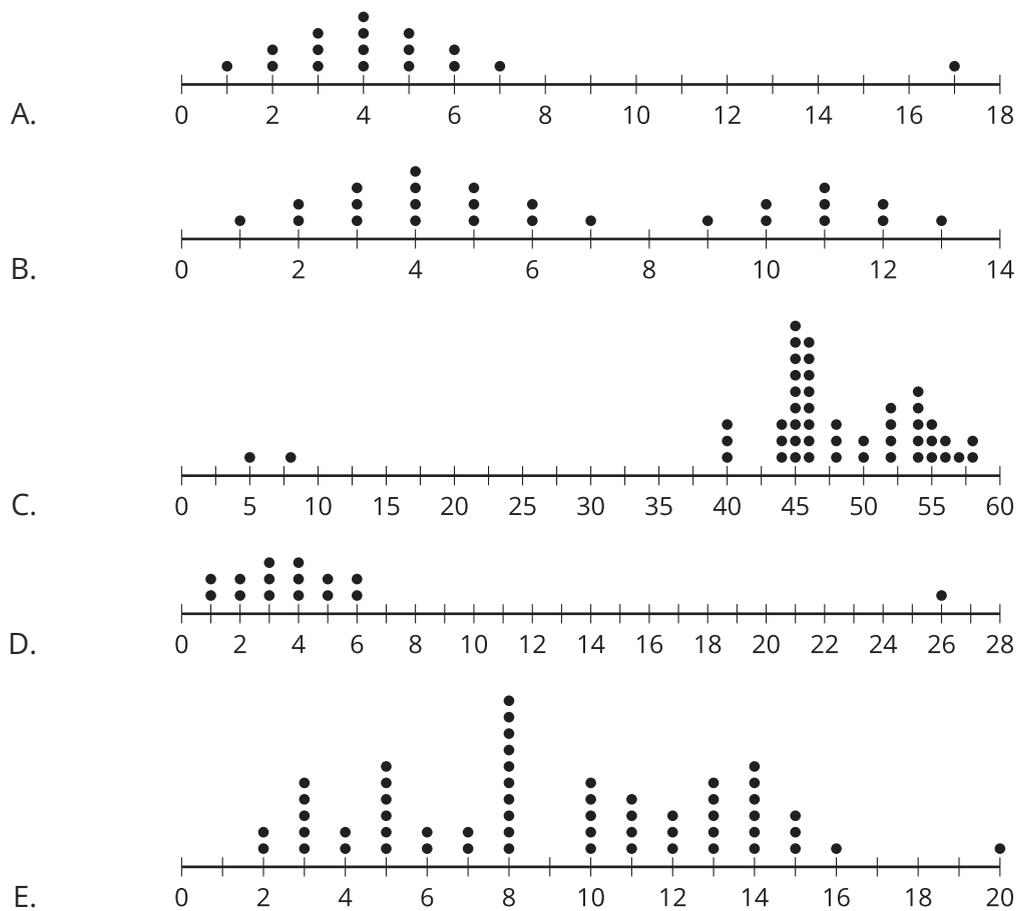
5. Solve each system of equations without graphing.

a. $\begin{cases} 2v + 6w = -36 \\ 5v + 2w = 1 \end{cases}$

b. $\begin{cases} 6t - 9u = 10 \\ 2t + 3u = 4 \end{cases}$

(From Unit 2, Lesson 16.)

6. Select **all** the dot plots that appear to contain outliers.



(From Unit 1, Lesson 14.)

7. Here is a system of equations:
$$\begin{cases} -x + 6y = 9 \\ x + 6y = -3 \end{cases}$$

Would you rather use subtraction or addition to solve the system? Explain your reasoning.

(From Unit 2, Lesson 14.)

8. Here is a system of linear equations:
$$\begin{cases} 6x - y = 18 \\ 4x + 2y = 26 \end{cases}$$

Select **all** the steps that would help to eliminate a variable and enable solving.

- A. Multiply the first equation by 2, then subtract the second equation from the result.
- B. Multiply the first equation by 4 and the second equation by 6, then subtract the resulting equations.
- C. Multiply the first equation by 2, then add the result to the second equation.
- D. Divide the second equation by 2, then add the result to the first equation.
- E. Multiply the second equation by 6, then subtract the result from the first equation.

(From Unit 2, Lesson 16.)

9. Consider this system of equations, which has one solution: $\begin{cases} 2x + 2y = 180 \\ 0.1x + 7y = 78 \end{cases}$

Here are some equivalent systems. Each one is a step in solving the original system.

Step 1:

$$\begin{cases} 7x + 7y = 630 \\ 0.1x + 7y = 78 \end{cases}$$

Step 2:

$$\begin{cases} 6.9x = 552 \\ 0.1x + 7y = 78 \end{cases}$$

Step 3:

$$\begin{cases} x = 80 \\ 0.1x + 7y = 78 \end{cases}$$

a. Look at the original system and the system in Step 1.

i. What was done to the original system to get the system in Step 1?

ii. Explain why the system in Step 1 shares a solution with the original system.

b. Look at the system in Step 1 and the system in Step 2.

i. What was done to the system in Step 1 to get the system in Step 2?

ii. Explain why the system in Step 2 shares a solution with that in Step 1.

c. What is the solution to the original system?

(From Unit 2, Lesson 16.)