2.33 Word Problem on Systems of Linear Equations: Problem Type 1

• Example 1

Find two numbers whose sum is 83 and whose difference is 17.

Using the variables x and y to represent the two numbers, choose $x > y$ and translate the statements into a system of linear equations.

$$x + y = 83$$
$$x - y = 17$$

Adding the two equations will eliminate the y variable leaving an equation in x alone.

$$2x = 100$$
$$x = 50$$

Substitute the value found for x into either of the equations in the system to find the value of y.

$$50 + y = 83$$
$$y = 33$$

Thus, the two numbers are 50 and 33.

CHECK YOURSELF 1

Find two numbers whose sum is 84 and whose difference is 24.

CHECK YOURSELF ANSWER

1. 54, 30.

2.33 Exercises

Name

Section Date

ANSWERS

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Find two numbers that satisfy each of the given conditions.

1. Sum is 37, difference is 11.

2. Sum is 67, difference is 19.

3. Sum is 17, difference is 11.

4. Sum is 1, difference is 1.

5. Sum is 1, difference is 25.

6. Sum is -5, difference is -45.

7. Sum is -10, difference is -46.

8. Sum is -4, difference is 16.

9. Sum is 60, difference is 26.

10. Sum is 27, difference is 9.