Practice 2.7.2: Solving Systems of Linear Equations by Substitution and Elimination

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Find the solution to each of the following systems by using the substitution method.

1. $\begin{cases} y+3=x \\ 3x+4y=16 \end{cases}$

2. Antony works at a local clothing store. He can earn either $600 per month plus a 5% commission or $450 per month and a 7% commission. Write and solve a system of equations that you could use to determine the amount of merchandise that Antony would need to sell in order to earn the same amount of money for each pay scale.

Find the solution to each of the following systems by using the elimination method.

3. $\begin{cases} 5x-2y=-13 \\ 2x+y=11 \end{cases}$

4. At an Italian bistro, the cost of 2 plates of spaghetti and 1 salad is $27.50. The cost for 4 plates of spaghetti and 3 salads is $59.50. Write and solve a system of equations to find the cost of 1 plate of spaghetti and the cost of 1 salad.

Choose an appropriate method to solve each system of equations, then find the solution.

5. $\begin{cases} 3x-3y=-6 \\ 2x-2y=-16 \end{cases}$

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

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES
Lesson 7: Systems of Linear Equations

For problems 7–10, write a system of equations, choose an appropriate method to solve each system, and then solve it.

7. There are 120 people attending a wedding reception. There are 16 tables. Some are round and some are square. The round tables seat 8 people and the square tables seat 6 people. How many of each type of table must there be at the reception?

8. Tickets to the theater cost $12 for adults and $9 for children. A group of 15 adults and children are attending the theater. If the total cost was $153, how many adults and how many children went?

9. Simon invests $1,200 into two savings accounts. One account earns 4% annual interest and the other earns 5.9% annual interest. At the end of 1 year, Simon earned $64.15 in interest. How much did he invest at each rate?

10. Carmen walks at a rate of 2 miles per hour and jogs at a rate of 4 miles per hour. She walked and jogged 3.4 miles in 1.2 hours. For how long did Carmen jog and for how long did she walk?