

Lesson 5-4: Solving Systems by Elimination

1. Sample answer: The properties of equality are used to make one pair of like variable terms within a system of equations have the same or opposite coefficients. Then the equations can be added or subtracted to eliminate a variable.
2. Sample answer: Both methods attempt to find the point(s) of intersection of two lines. Graphing looks for the point(s) visually, while solving algebraically solves for one variable and then the other.
3. Sample answer: Elimination would be easier because the equations contain opposite y terms. Substitution would be less efficient.
4. $x = 64, y = 92$
5. $c = 4, d = 1$
6. Infinitely many solutions
7. -1
0; 3; 15 5
5 6
3; 5 3
8. $x = 4, y = 9$
9. $n + f = 44, 3n + f = 70$; Frankie is 31 years old and Natalie is 13 years old.
10. No solution
11. 18 one-point shots and 38 two-point shots
12. Train A weighs 241 tons. Train B weighs 71 tons.
13. a. $2x + 3y = 31$
 $3x + 2y = 29$

b. Roast beef costs \$5, and turkey costs \$7
14. a. $x = -4, y = -5$
b. $x = -4, y = -5$
Sample answer: The solution to a system of equations will always be the same no matter what solution method you choose.
15. No solution; Sample answer: If the first equation is multiplied by 7, the variable terms will be equivalent to the variable terms in the second equation. The constant on the right of the equation will not be the same; it will be 119. So, the variable terms will be eliminated, but the constant will not. This will result in an untrue equation, so there is no solution.
16. Sample answer: There is no solution. There are no numbers r and s that meet these criteria.
17. $m = 7, n = 5$