**Barron’s Let’s Review Regents – Algebra I**

# Chapter 4: Systems of Linear Equations

## 4.1 Solving Systems with Guess and Check

### Finding an Ordered Pair That Satisfies an Equation with Two Variables

### Checking to See If an Ordered Pair Is Part of the Solution Set of a Two-Variable Equation

### Identifying Equations That Have Equivalent Solution Sets

### Solving Systems of Equations by Guess and Check

The guess and check method is not very practical unless it is a multiple-choice question where there are at most four ordered pairs to check.

### Check Your Understanding of Section 4.1

1. Multiple-Choice
2. (2, 5) is a solution to which equation?  
   2(2) + 5 = 9 ck.  
   **(2) 2x + y = 9**
3. Which ordered pair is a solution to the equation 3y – 4x = 3?  
   (1) (3, 5) => x = 3, y = 5  
   3(5) – 4(3) ≟ 3  
   15 – 12 = 3 ck  
   **(1) (3, 5)**
4. Which ordered pair is ***not*** a solution to the equation 3y – 2x = 3?  
   **(4) (10, 8) => x = 10, y = 8**3(8) – 2(10) ≟ 3  
   24 – 20 3 (not a solution)
5. Which equation has the same solution as the equation 2x + 3y = 5?  
   Multiply by 4: 8x + 12y = 20  
   **(1) 8x + 12y = 20**
6. Which equation does not have the same solution as the equation 4x – 8y = 12?  
   **(1) 6x – 7y = 20**
7. Which is the solution set to this system of equations?  
   2x + 3y = 20  
   5x – 2y = 31  
     
   (1) (4,4)  
   2(4) + 3(4) ≟ 20  
   8 + 12 = 20 ck  
   5(4) – 2(4) ≟ 31  
   20 – 8 failed  
     
   (2) (1, 6)  
   2(1) + 3(6) ≟ 20  
   2 + 18 = 20 ck  
   5(1) – 2(6) ≟ 31  
   5 – 12 31 – failed  
     
   (3) (-2, 8)  
   2(-2) + 3(8) ≟ 20  
   -4 + 24 = 20 ck  
   5(-2) – 2(8) ≟ 31  
   -10 – 16 31 failed  
     
   **(4) (7,2)**2(7) + 3(2) ≟ 20  
   14 + 6 = 20 ck  
   5(7) – 2(2) ≟ 31  
   35 – 4 = 31 ck
8. Which is the solution set to this system of equations?  
   -4x + 2y = 18  
   3x – 6y = -36  
     
   **(1) (-2, 5)**-4(-2) + 2(5) ≟ 18  
   8 + 10 = 18 ck  
   3(-2) – 6(5) ≟ -36  
   -6 -30 = -36 ck
9. The ordered pair (3, -7) is a solution to which system of equations?  
   **(3) 2x – 3y = 27, 4x + 2y = -2**  
   2(3) -3(-7) ≟ 27  
   6 + 21 = 27 ck  
   4(3) + 2(-7) ≟ -2  
   12 – 14 = -2 ck
10. If (a, 5) is a solution to the equation   
    3x + 6y = 42, what is the value of a?  
      
    3(a) + 6(5) = 42  
    3a + 30 = 42  
    -30 = -30  
    3a = 12  
    a = 4  
      
    **(4) 4**
11. Which is not a solution to the system of equations?  
    x + y = 12  
    2x + 2y = 24  
    **(2) (3,10)**  
    3 + 10 12
12. Show how you arrived at your answers.
13. The equation 2x + 3y = 11 has two solutions in which both coordinates are positive integers less than 6. What are those two solutions?  
      
    (1, 3) and (4, 1)  
      
    x = 1  
    2(1) + 3y = 11  
    -2 = -2  
    3y = 9  
    y = 3  
      
    x = 4  
    2(4) + 3y = 11  
    8 + 3y = 11  
    -8 = -8  
    3y = 3  
    y = 1
14. Use guess and check to find the solution to the system of equations.  
    x + y = 8  
    x – y = 6  
    Ordered pairs that satisfy the first equation:  
    (1, 7), (2, 6),(3, 5), (4, 4), (5, 3), (6, 2), (7, 1)  
      
    **(7, 1)**7 + 1 = 8 ck  
    7 – 1 = 6 ck
15. The system of equations:  
    2x + 5y = 25  
    2x + 5y = 26  
      
    has no solutions. Explain why.  
      
    **The two equations are contradictory and any proposed solution to one equation would result in a failed check in the other equation.**
16. The equation x + 3y = c has the point (4,7) in its solution set. What is c?  
      
    4 + 3(7) = 4 + 21 = 25  
    **c = 25**
17. (6, -2) is a solution to the equation   
    5x – 6y = 42.   
      
    Find a solution to 15x – 18y = 126  
      
    5x – 6y = 42  
    Multiply by 3  
    15x -18y = 126  
      
    Therefore (6, -2) is a solution to the second equation as well as the first, since the second equation matches the first equation when multiplied by 3.