

Name: _____

Date: _____

Pre Calculus 11: HW Section 8.2b Solving Systems of Equations by Substitution

1. Solve each system by using substitution:

i) $2x + 3y = 10$ $y = 3x - 5$	ii) $3x + 2y = 8$ $x = 12y - 10$
iii) $\frac{x}{3} + \frac{y}{2} = \frac{1}{6}$ $x = 6y + 8$	vi) $13(x + y) = 15x - 8$ $3x + 3y = 9(x - 2)$
vii) $y = x - \frac{1}{4}$ $0 = x^2 - y$	x) $y = \frac{4}{x}$ $y = x - 3$

viii) $y = \frac{x}{2} + 4$ $y = |x|$

iv) $y + 4 = (x + 2)^2$ $y + 4(x + 1)^2 + 7 = 0$

ix) $y = -(x - 2)^2 + 2$ $y = x^2$

ix) $y = -(x - 2)^2 + 2$ $y = 3(x + 2)^2 + 3$

$$xii) \quad x^2 + 4x + 8 = y^2 \quad (x+2) = 2y$$

$$vi) \quad \frac{x^2 - 4x + 4}{4} + \frac{y^2 + 2x + 1}{9} = 1 \quad y = 2x + 1$$

2. If $ax + ay = 4$ and $x + y = 17$, what is the value of "a"?

3. Given that (4,10) is a solution to the following system of equations, find the values of "A" and "B":

$$(A + 2)x - By = 0 \quad x^2 + (A - 2)x - 2By = 0$$

4. , Determine all pairs (x,y) that satisfy the system of equations: $x + y = 0$ $x^2 - y = 2$

5. If $x - y = 4\sqrt{2}$ and $xy = 56$, determine the two possible values of “ $x+y$ ”.

6. The line $y = 2x + 2$ intersects the parabola $y = x^2 - 3x + c$ at two points. One of these points is $(1,4)$. Determine the coordinates of the second point of intersection. [Euclid]

7. Two numbers have a difference of 14. If the larger number is increased by 5 and the smaller is squared, the sum will be 61. Write a system of equations for this question and then find the numbers.

8. The sum of the reciprocal of two numbers is 5. The product of the reciprocal of the two numbers and 3 is equal to 18. Find the two numbers:

9. Challenge: If “ x ” and “ y ” are real numbers, determine all solutions (x,y) of the system of equations:

$$x^2 - xy + 8 = 0$$

$$x^2 - 8x + y = 0$$