Lesson 5 – Solving Systems of Linear Equations by Substitution

THE IDEA: John wants to sell his car in a newspaper ad. The ad only allows up to 95 characters including spaces. Here is John's ad:

Vehicle on sale! 2001 black Honda prelude in mint condition for \$12000. Call John at 604-512-3456.

John's ad has 98 characters including spaces. Therefore, we can substitute the word

Venicle for av

How to solve linear equations algebraically with the substitution method?

- 1. *Isolate* one of the variables from one of the given equations.
- 2. Plug in the results from step 1 into the remaining equation.
- 3. Now simplify and solve for the remaining variable.
- 4. Use the results in step 3 to find the solution of the variable that was isolated. (Don't forget to write your final answer as an ordered pair).

Examples:

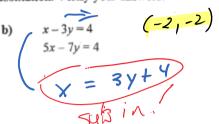
$$2x + y = 7$$
 $y = -2x + 7$
 $x - 3y = 14$
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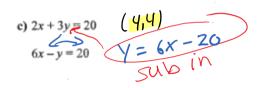
Section 9.1 Extra Practice

1. Solve the following systems of linear equations by substitution. Verify your answer

a)
$$4x + y = 1$$

 $x = (y - 20)$ (-2, 9)





c)
$$2x+3y=20$$
 $(4,4)$

$$6x-y=20$$

$$y=6x-20$$

$$3x+2y=36$$

$$3x+2y=36$$

$$3x+2y=36$$

$$3x+3x-12=36$$

$$4x+3y=36$$

$$6x-12=36$$

$$n + g = 20$$

$$4g = n$$

$$4(4) = n$$

$$4$$

$$16 = n$$

$$7$$

$$16$$

$$16$$

$$16$$

$$16$$

$$16$$

$$16$$

$$16$$

$$16$$

$$16$$

$$16$$

$$n = \frac{1}{3}m - 1a$$

$$h + m = 56$$

$$n+51 = 56$$
 $-51 = 51$
 $n=5$