

Section 7.1

Method of Substitution

- a) Solve one of the equations for one variable in terms of the other.
- b) Substitute the expression found in step (a) into the other equation to obtain an equation in one variable.
- c) Solve the equation obtained in step (b).
- d) Find the value of the other variable.
- e) Check that the solution satisfies each of the original equations.

Problem 1. Solve the system by the method of substitution.

a)
$$\begin{cases} x - 4y = 1 \\ x + 5y = 10 \end{cases}$$

b)
$$\begin{cases} \frac{1}{2}x - \frac{3}{4}x = 2 \\ x - \frac{5}{4}y = \frac{1}{2} \end{cases}$$

$$c) \begin{cases} 0.6x - 2.8y = 8 \\ 0.8x + 5.6y = -2.4 \end{cases}$$

$$d) \begin{cases} x + y = 1 \\ x^2 + y = 2 \end{cases}$$

$$e) \begin{cases} 3x + y = 1 \\ x - y^2 = 5 \end{cases}$$

$$f) \begin{cases} x^2 + y^2 = 36 \\ x - 2y = 6 \end{cases}$$

Homework: Read section 7.1, do #5, 7, 11, 17, 23, 31, 41