

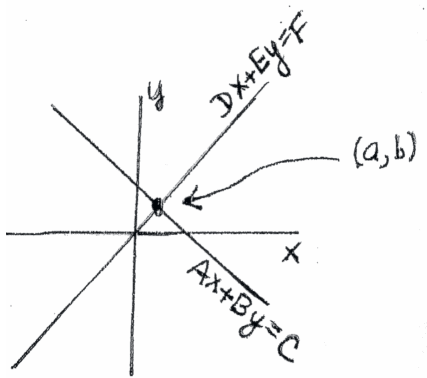
## A System of Two Linear Equations in Two Variables

$$Ax + By = C$$

$$Dx + Ey = F$$

where **A**, **B**, **C**, **D**, **E**, and **F** are numbers; and **x** and **y** are variables

- ☉ **A solution of the system** is an ordered pair of numbers  $(a, b)$ , such that the replacement of  $x$  by  $a$ , and of  $y$  by  $b$ , make both equation hold.
- ☉ Geometrically, a solution  $(a, b)$  of the system is a point of intersection of the two lines represented by the two equations of the system.



### ☉ The Principles of Solving the System by the Substitution Method

- Step 1.** Chose one of the two equations and solve for one variable in terms of the other variable.
- Step 2.** Substitute the expression for the variable found in Step 1 into the **other** equation.
- Step 3.** You now have one equation with one variable. Solve this equation for that variable.
- Step 4.** Find the value of the other variable by substituting the value found in Step 3 into the expression found in Step 1.
- (Step 5.** Check the ordered pair solution in **both** original equations.)