Math 120 Intermediate Algebra

Systems of Equations in Two Variables

A *system of equations* is a set of 2 or more equations, in 2 or more variables, for which a common solution is sought.

<table>
<thead>
<tr>
<th>Graphs intersect at one point.</th>
<th>Graphs are parallel.</th>
<th>Equations have the same graph.</th>
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</thead>
<tbody>
<tr>
<td>One Solution</td>
<td>No Solution</td>
<td>Infinite Number of Solutions</td>
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</tbody>
</table>

Consistent: Inconsistent: Consistent: Independent: Independent: Dependent: Dependent:

*Defns – consistent system: at least one solution*

*dependent system (for 2x2): one equation is a constant multiple of the other*

**Ex 1** Is (4,0) a solution to the system $2x + 7y = 8$?

$$x - 9y = 4$$

**Ex 2** Find a system of equations whose unique solution is $(-2,5)$. 