# Solving Systems of Linear Equations
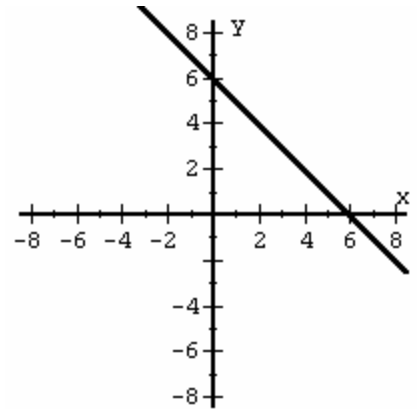
**Case 1: One Solution**

**Independent System**



$x = 4$

$y = 2$
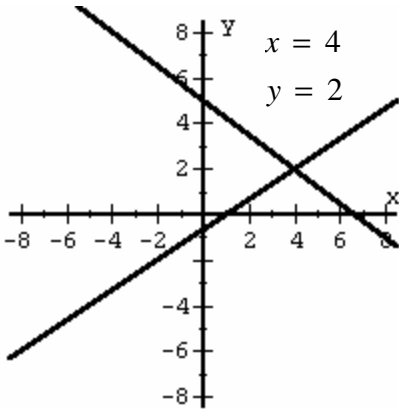
**Case 2: No Solution**

**Inconsistent System**
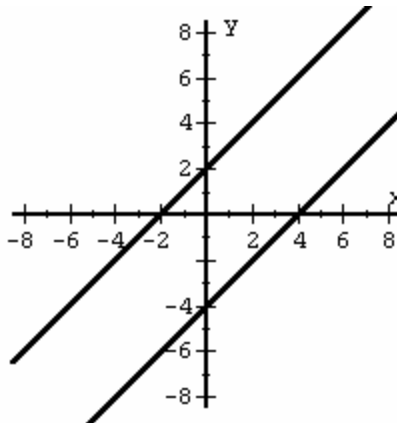


**Case 3: Infinite Solutions**

**Dependent System**



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## Classification by Number of Solutions

### At Least 1 Solution

**Consistent System**

### No Solution

**Inconsistent System**

Reach a Contradiction

ex)   $0 = 2$

### Exactly 1 Solution

Independent System

ex)   $x = 4$
      $y = 2$

### Infinite Number of Solutions

Dependent System

Reach an Identity

ex)   $0 = 0$