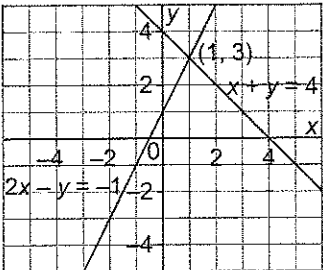


## Chapter 7 Study Guide

Skill	Description	Example
Solve a linear system by graphing.	To solve a linear system, graph both equations on the same grid or enter the equations in a graphing calculator. The coordinates of the point of intersection are the solution of the linear system.	<p>For this linear system:</p> $2x - y = -1$ $x + y = 4$  <p>The solution of the system is:  <math>x = 1</math> and <math>y = 3</math></p>
Solve a linear system using algebra.	To solve a linear system, use substitution or elimination. Then verify that the solution is correct by substituting the $x$ - and $y$ -values into both equations.	<p>For this linear system:</p> $2x + y = 3 \quad \textcircled{1}$ $3x - y = 7 \quad \textcircled{2}$ <p>The coefficients of <math>y</math> are opposite integers, so use elimination.</p> $\begin{array}{r} 2x + y = 3 \quad \textcircled{1} \\ + (3x - y = 7) \quad \textcircled{2} \\ \hline 5x = 10 \\ x = 2 \end{array}$ <p>Substitute <math>x = 2</math> in equation <math>\textcircled{1}</math>.</p> $2(2) + y = 3$ $y = -1$ <p>The solution is: <math>x = 2</math> and <math>y = -1</math></p>
Find the number of solutions of a linear system.	To find the number of solutions of a linear system: <ul style="list-style-type: none"> <li>• compare the graphs of the equations, or</li> <li>• compare the slopes and <math>y</math>-intercepts of the lines</li> </ul>	<p>These lines have different slopes, so the system has exactly one solution:</p> $y = 3x + 4$ $y = -2x + 1$ <p>These lines have the same slope and different <math>y</math>-intercepts, so the system has no solution:</p> $y = 3x + 4$ $y = 3x + 2$ <p>These lines have the same slope and the same <math>y</math>-intercept, so the system has infinite solutions:</p> $y = 3x + 4$ $2y = 6x + 8$