

# Unit 5 Linear Systems

## Lesson Outline

<b><u>BIG PICTURE</u></b>			
Students will:			
<ul style="list-style-type: none"> <li>algebraically solve systems of two linear equations, and solve related problems that arise from realistic situations.</li> </ul>			
Day	Lesson Title	Math Learning Goals	Expectations
1	Where Do We Meet? <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Given graphs of various linear relations (vertical, horizontal, positive slopes, negative slopes, parallel, perpendicular), graphically determine the coordinates of point of intersection for pairs of these relations.</li> <li>Solve a problem that arises from a realistic situation represented by two linear relations, preferably utilizing relations employed in the previous goal. Choose some examples with fractional solutions or solutions with large numbers.</li> <li>Use technology, as appropriate.</li> </ul>	ML1.03, ML3.01, ML3.03  CGE 3c
2	Approximate or Accurate? <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Discuss accuracy of solutions of pairs of linear systems from Day 1.</li> <li>Establish the need to and skill of isolating a variable in order to use the substitution method.</li> <li>Develop understanding of facility of solving systems using the substitution method as a means of improving accuracy of solution.</li> </ul>	ML1.01, ML1.03, ML3.02  CGE 2c, 5b
3	There Is Another Way! <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Discuss the concept of elimination as a method of solving systems of equations. Demonstrate the elimination of a variable when coefficients are the same. Draw examples from linear systems of Day 1 and 2 where solutions have already been established graphically and algebraically.</li> <li>Rewrite systems from Day 1 and 2 as equivalent systems with a matching coefficient to facilitate the elimination method of solving systems of equations.</li> <li>Develop the algebraic method of elimination to solve a system of two linear equations.</li> </ul>	ML3.02, ML3.03  CGE 4b, 7b
4	3 Ways <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Discuss the best method of solution for a problem arising from a realistic situation represented by a linear system of two equations involving two variables.</li> <li>Solve a problem using all three methods, verifying that they are consistent (graphing, substitution, elimination).</li> <li>Consolidate the skill of rewriting equations in different formats.</li> </ul>	ML1.01, ML1.03, ML3.01, ML3.02, ML3.03  CGE 3c, 4f
5	What Is the Best Way? <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Solve each problem, using the method of their choice, when presented with three linear system problems arising from realistic situations.</li> <li>Seek confirmation of solution from two other students who may or may not have solved the system using a different method.</li> <li>Discuss the appropriateness of each method in each case.</li> </ul>	ML1.01, ML1.03, ML3.01, ML3.02, ML3.03  CGE 5a, 5e

Day	Lesson Title	Math Learning Goals	Expectations
6	Finding the Point of Intersection  Summative Assessment  <i>(lessons not included)</i>	<ul style="list-style-type: none"> <li>Create three linear systems problems, complete with solutions and graphs, each one demonstrating the suitability of one of the three methods as their summative assessment of the unit.</li> </ul>	ML1.01, ML1.03, ML3.01, ML3.02, ML3.03  CGE 5b
7	Finding the Point of Intersection  <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Exchange problems created amongst them for others to solve, verify their solutions, and justify the selection of preferred method of solution.</li> </ul>	ML1.01, ML1.03, ML3.01, ML3.02, ML3.03  CGE 4f, 5e
8	Finding the Point of Intersection  <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Finalize their three linear-system problems, making necessary changes based on input from peers.</li> </ul>	ML1.01, ML1.03, ML3.01, ML3.02, ML3.03  CGE 2c, 5g