

Linear Relations & Linear Systems

Curriculum Expectations

By the end of this course, students will:

- connect the rate of change of a linear relation to the slope of its line, and define the slope as the ratio $m = \frac{\text{rise}}{\text{run}}$
- identify $y = mx + b$ as a common form for the equation of a line, and identify the special cases $x = a$, $y = b$
- identify the geometric significance of m and b in the equation $y = mx + b$
- identify properties of the slopes of lines and line segments (e.g. direction, steepness, parallelism)
- graph lines by hand (e.g. using the y -intercept and slope, using the x - and y -intercepts)
- determine the equation of a line given: its graph; slope and y -intercept; slope and a point; two points
- express the equation of a line in the form $y = mx + b$, given the form $Ax + By + C = 0$
- determine graphically the point of intersection of two linear relations
- use substitution or elimination to algebraically solve systems of two linear equations involving two variables
- solve problems that arise from realistic situations described in words or represented by given linear systems of two equations involving two variables, by choosing an appropriate algebraic or graphical method

Schedule of Topics

Day	Topic	Homework	Questions?
1	Slope of a Line or Line Segment		
2	Slope-Intercept Form of a Line, $y = mx + b$		
3	Equation of a Line, Given Slope and a Point		
4	Equation of a Line, Given Two Points		
5	Standard Form of a Line, $Ax + By + C = 0$		
6	Graphing Lines Using x - and y -Intercepts		
7	Applications of Linear Relations		
8	Review: Linear Relations		
9	Solving Linear Systems By Graphing		
10,11	Solving Linear Systems Using Substitution		
12,13	Solving Linear Systems Using Elimination		
14	Applications of Linear Systems		
15	Review: Linear Systems		

Assessment and Evaluation

Quiz/Test/Task	Date	K	A	T	C

Skills Checklist

At the end of this strand, I am able to:

- | | | | |
|--|---------------------------------|--------------------------------|---------------------------------|
| • determine the slope of a line/line segment from a graph | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • determine the slope of a line/line segment using a formula | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • determine the equation of a line from a graph | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • determine the equation of a line given a slope and a point | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • determine the equation of a line given two points | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • graph a line, given its equation in slope-intercept form | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • convert between slope-intercept and standard forms | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • graph a line, given its equation in standard form | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • solve word problems involving linear relations | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • solve a system of two linear equations by graphing | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • solve a system of linear equations using substitution (direct) | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • solve a system of linear equations using substitution (in place) | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • solve a system of linear equations using elimination (direct) | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • solve a system of linear equations using elimination (multiplying) | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • solve word problems involving linear systems | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |