

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: MTE 5

Credits: 1

Course Title: Linear Equations, Inequalities, and Systems of Linear Equations in Two Variables

Course Description: Includes finding the equation of a line, graphing linear equations and inequalities in two variables, and solving systems of two linear equations. Emphasizes writing and graphing equations using the slope of the line and points on the line, and applications. Credits not applicable toward graduation. Prerequisite: Placement recommendation or MTE 4. Lecture 4 hours per week for $\frac{1}{4}$ semester.

General Course Purpose: This course is designed to give the student understanding and practice in finding equations of lines, graphing lines and inequalities, and solving systems of equations.

Course Prerequisites and Co-requisites:

Prerequisite: Placement recommendation or MTE 4

Student Learning Outcomes:

Upon completing the course, the student will be able to

- a. Determine the coordinates of a point plotted on the coordinate plane;
- b. Determine whether an ordered pair is a solution to an equation in two variables;
- c. Graph a linear equation by finding and plotting ordered pair solutions;
- d. Identify the x and y intercepts of a graph;
- e. Graph a linear equation by plotting intercepts;
- f. Graph an equation given in slope-intercept form;
- g. Graph a horizontal or vertical line given its equation;
- h. Find the slope of a line given two points on the line;
- i. Find the slope of a line given its equation or graph;
- j. Find the slope of horizontal and vertical lines;
- k. Write an equation of a line in slope-intercept form given the slope and the y-intercept;
- l. Use point-slope form to write an equation of a line in slope intercept form given the slope and a point on the line or given two points on the line;
- m. Write the equation of a horizontal or vertical line;
- n. Find the equation of a line parallel or perpendicular to a given line, through a given point;
- o. Determine if an ordered pair is a solution of a system of equations in two variables;
- p. Solve systems of linear equations by graphing;
- q. Solve by elimination using substitution or addition;
- r. Identify a system of linear equations as consistent and independent, consistent and dependent, or inconsistent;
- s. Evaluate $y = f(x)$ for specific values of x ;
- t. Given the graph of $y = f(x)$, evaluate $f(x)$ for specific values of x ;
- u. Given the graph of $y = f(x)$, find x for specific values of $f(x)$; and
- v. Solve application problems that require linear equations, inequalities, and systems of linear equations in two variables.

Major Topics to Be Included:

- a. Rectangular coordinate system
- b. Graphs of linear equations and inequalities
- c. Slope
- d. Equations of lines
- e. Systems of linear equations
- f. Function notation
- g. Applications of linear equations, inequalities and systems of Equations

Date Created/Updated (Month, Day, and Year): January 2, 2012