

LESSON PLAN – Exploring $y = mx + b$

Class: Seventh Grade Math

Date to be taught:

OBJECTIVES: (List as 1, 2, etc)

1. Students will be able to graph lines using a graphing calculator.
2. Students will be able to predict the graph of a linear equation in the form $y = mx + b$.
3. Students will be able to sketch a line given equation $y = mx + b$ by prediction or by calculator.
4. Students will be able to compare graphs and determine similarities and differences.
5. Students will be able to describe how the graph of a lines changes as the values of m and b change in the equation $y = mx + b$.

MICHIGAN BENCHMARKS:

1. Describe, analyze and generalize patterns arising in a variety of contexts and express them in general terms
2. Represent and record patterns in a variety of ways including tables, charts, graphs, and translate between various representations.
3. Use patterns and their generalizations to make and justify inferences and predictions.

TECHNOLOGY INTEGRATION: (List websites, software, or other computer technology used in this lesson.)

A TI-83 Plus Graphing Calculator.

OPENER:

Distribute graphing calculators and worksheets entitled “Graphing Calculator Activity” to students.

Familiarize students with the calculator specifically giving attention to graphing, window, and zoom features.

Make sure all students’ calculators are using the standard window range by having them select ZOOM and then 6:ZStandard.

PROCEDURE:

Referring to the worksheet, have students enter equations (a) and (b) in Part 1 of the worksheet. Have students compare and note similarities and differences on their paper.

Discuss students’ observations.

*Note that the calculator will graph highlighted equation(s). Any fractions must be enclosed in parentheses ().

Go over directions for Part 2 of the worksheet. Have students predict #1 (comparing the equation for #1 with (a) and (b)). Students will then sketch the graph and check the accuracy of their prediction on the calculator. Display the graph on the overhead.

Observe students as they sketch predicted graphs and use their calculators. Assist students who are having difficulty by reminding them to compare equations with others they have already graphed and noting similarities and differences.

CLOSURE (and Evaluation of Student Progress):

Have students complete Part 3 of the worksheet – the “Thought” portion. After all students have completed this section, the class will discuss how the values of ***m*** and ***b*** affect the graph of
 $y = mx + b$.

Specific points that should be covered include the fact that the absolute value of ***m*** affects the steepness of the line. The sign of ***m*** affects the direction of the line from left to right, and the value of ***b*** affects where the line falls; above, on or below the origin.

Assign “Graphing Additional Practice” work sheet. Go over instructions.