

ALGEBRA APPLICATIONS LINE/SLOPE/Y-INTERCEPT

CONCEPT Linear equations are used frequently in many areas of math and science. When we wish to visualize the relationship between two variables, it is helpful to put them on a graph. When two variables have a linear relationship, their graphs have unique identifiable characteristics - the slope and the y-intercept. We can deduce the equation from knowing these two characteristics, and we can identify both the slope and the y-intercept from the equation.

BACKGROUND

The slope of a line relates to how quickly one variable changes with the other. In a graph, it can be interpreted as the "steepness" of a line. Lines that appear steeper will have larger slopes. A line that is at a perfect diagonal has a slope of 1. The slope of a line is denoted by "m" in the slope-intercept formula. Lines that appear to rise have a positive slope, while those that appear to fall have a negative slope. So, a line with a slope of 1/4 will appear flat, but still increase while it goes from left to right. A line with a slope of -4 will appear steep, but decrease while it goes from left to right. The y-intercept is a simple concept: it occurs at whatever y-value the line intersects the y-axis! This is denoted by "b" in the slope-intercept formula.



REAL WORLD CONNECTIONS

While slope is a mathematical term, it is commonly used in our language, so much so that most people are familiar with some real-world examples. The slope of a road needs to be small enough such that vehicles can safely traverse it. The grade of a road is normally small, but the grade is the exact same as the mathematical definition of slope. Farm equipment often is used on highly sloped terrain, and farmers need to know the limits of their equipment. This is reported as the slope that the equipment can safely handle.





powered by: Nebraska Public Power District Always there when you need us