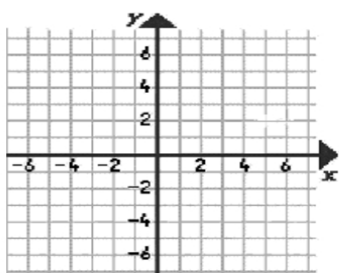


GRAPHING QUADRATIC EQUATIONS

In this worksheet, you will learn how about different characteristics of the graph of a quadratic equation. The concepts of vertex, how the graph opens and intercepts for quadratic equations are introduced. Graphing quadratic equations by using a table of ordered pairs is also covered. Using a table of ordered pairs for graphing a quadratic equation is similar to graphing lines.

So far, you have only graphed linear equations usually in the form $y = mx + b$. An example of a linear equation is $y = 3x - 2$. The most basic way to graph a linear equation is by constructing a table of ordered pairs. Two points are needed to graph a line. Choose any value for x , substitute this value for x into the equation $y = 3x - 2$ and solve for y . You have found an ordered pair that 'satisfies' the equation so this ordered pair will lie on the graph of this equation. Repeat this process to find a second point which lies on the graph of $y = 3x - 2$.

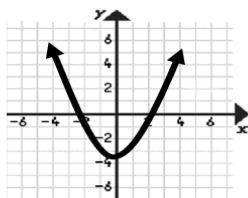


Complete the table below and graph $y = 3x - 2$ on the coordinate plane to the side. (Remember you can choose any value you want for x , substitute this value into the equation and then solve for y . This process gives you one ordered pair. You will need two ordered pairs to graph this equation.)

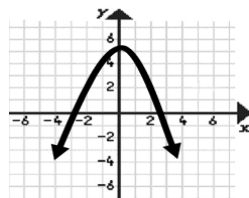
X	Y

Graphing quadratic equations is more involved than graphing lines but the process still uses an x - y table to produce points which lie on the graph. The term "quadratic" comes from the Latin "quadranum" which means "squared." So a quadratic equation is an equation with a squared term. More precisely, all quadratic equations can be written in the form $y = Ax^2 + Bx + C$ where A , B , and C are real numbers and $A \neq 0$ (since $0x^2$ would eliminate the squared term).

All quadratic equations have the same general shape. Think of a satellite dish and take a cross section of that dish. The shape is called a parabola. The quadratic equations that you will be sketching will either open up or down. Whether they open up or down (shown below) will depend on the sign of A in the quadratic equation (the coefficient of the x^2 term).



A is positive



A is negative