Graphing a quadratic. There are many ways to graph a quadratic. This is the way we are teaching and work we want to see on your test at NSHS

Graph

This table will guide you through the three steps.

|  |  |  |
| --- | --- | --- |
| X | Y | Specific point |
|  | 0 | 1st x-intercept |
|  | 0 | 2nd x-intercept |
| 0 |  | y-intercept |
|  |  | vertex |

In each step you are starting with the original equation.

Step 1. Finding the x-intercepts

Start with the Original equation.

For this step you factor the equation with generic rectangles and diamonds. Here are the results after factoring.

Solve for the roots with the zero product property.

From this we get the two equations x-3=0 and x+1=0, which are easily solved for x+3 and x+-1. These are x-intercepts and will be put in the guiding table and plotted on the graph

Step 2. Finding the y intercept. This is easy. At the y intercept the x value is 0, as already noted in the table. To find the y value you simply plug zero in for x in the original equation.

Start with the original equation. .

Enter zero in for all the x. .

Solve for y. y=-3

So your ordered pair is (0,-3) for the y-intercept

Step 3 finding the vertex. This is similar to finding the y intercept, but the math can be more challenging. Just like the y intercept, you need an x value to plug into the original equation. In this case you use the x value that is in the middle of the 2 x-intercepts.

Start with the original equation.

Find the x-value in the middle of the x-intercepts. X=1

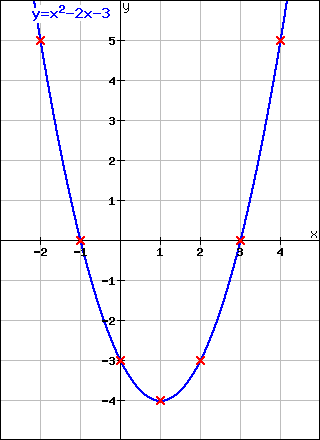
Plug this value into the original equation

Solve for y y=-4

So your ordered pair for the vertex is (1, -4)

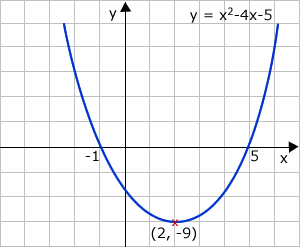
Put these points in your table and then graph

|  |  |  |
| --- | --- | --- |
| X | Y | Specific point |
| 3 | 0 | 1st x-intercept |
| -1 | 0 | 2nd x-intercept |
| 0 | -3 | y-intercept |
| 1 | -4 | vertex |

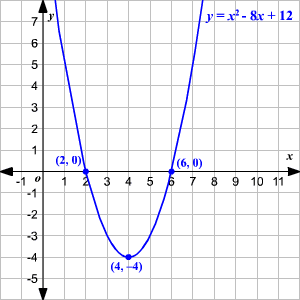


Graph the following equations

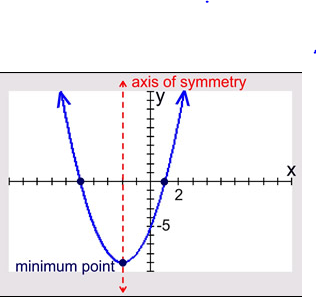
Solution to number 1



Solution to problem 2



Solution to problem 3



Solutions to problem 4

