Tangent Line Project III

For this project you're going to construct some Mathematica code where you will be able to enter a quadratic polynomial and it will automatically output the equation for the tangent line whose slope is equal to two and plot them. For this project we will use the quadratic polynomial below:

$f(x) = x^2 - 6x$

For this project you will need to make your Mathematica code so that it executes as one command. Someone should be able to open your file press shift+enter one time and see the desired output. Note the following two codes below. The one on the left requires someone to press enter twice to create the graph. Whereas the code on the right only requires someone to press enter once. All your project code should run like the code on the right.
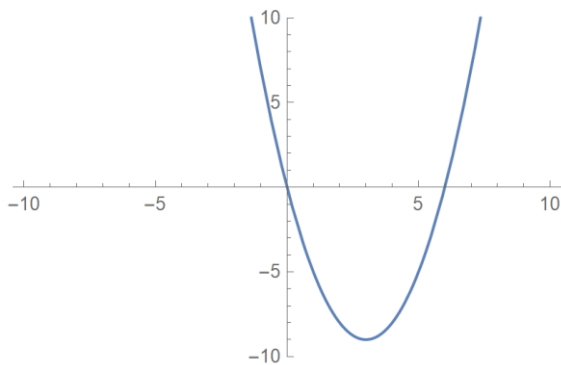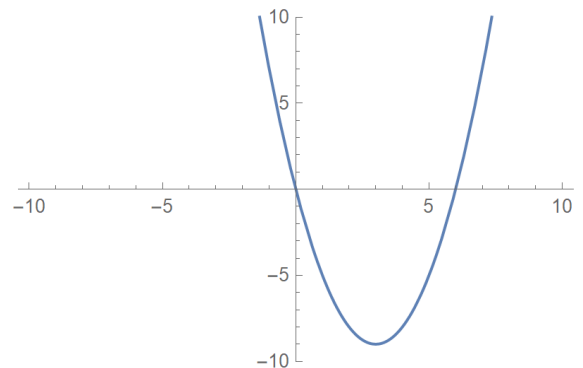

1) Before moving on with the project open Mathematica and try to replicate the two screens above to make sure you understand this concept of one execution programs.

2) In addition to creating the graph with the window above your code will need to do the following all in one execution of the code.

Plot the tangent line when the slope is equal to -2

Keep in mind, your code will need to take the derivative, solve for *x* when the derivative is -2, use that *x*-value to find the y-value that the tangent line passes through, and then use the slope and *x-y* pair to find the equation of the tangent line, and plot both the tangent line and the quadratic polynomial. On Friday next week I'll be posting a video walk through of the project, but the best way to learn is to try all of this on your own and see where you get stuck. The final output is below.