In this problem, we will explore quadratic functions and their roots.

1. Consider the function $f(x) = x^2 + 4x + c$. For what values of c does this functions have no roots? A double root? Two distinct roots?

2. Why do your answers to the first part make sense? Consider the graph of the function $g(x) = x^2 + 4x$. What are we doing to the graph of this function by changing c?

3. Now, consider the function $f(x) = x^2 + bx + 4$. For what values of b do we have no roots? A double root? Two distinct roots?

4. What about the function $f(x) = x^2 + bx - 4$? Answer the same questions here.