Assignment 3 - Hand in on Oct. 6 in class

This assignment is based on Section 3 of the notes posted on the course website. (Pages 15 and 16 of these notes were revised on October 1.)

1. Algebraic numbers were defined briefly on page 15 of the notes. Show that $\sqrt{3} + 2$ is algebraic. Also show that $\sqrt{5} - \sqrt{2}$ is algebraic. In each case, give the weight (as defined in the notes) of the polynomial having these, respectively, as a root.

2. List all polynomials with integer coefficients of weight 5 with positive leading coefficient. In all, how many real algebraic numbers are roots of one of these equations?