Name: _____

College Algebra: Quiz #17 (Solutions)

1. Construct a polynomial of degree 3 which has roots at -2, 2, and -1.

   Solution: Remember that c is a root of $p(x)$ precisely when $x - c$ is a factor of $p(x)$. (This is called the Factor Theorem.) That means that we can force a polynomial to have a given root, say 1, by making $x - 1$ a factor.

   In this case, a polynomial will have these roots if it has the factors $x + 2$, $x - 2$, and $x + 1$. For example,

   $$\boxed{(x + 2)(x - 2)(x + 1)}$$

   works.