**3.3 Zeros of Polynomial Functions**

**CLASSROOM EXAMPLE 1 Deciding Whether  Is a Factor**

Determine whether  is a factor of each polynomial.

**(a) **

**(b) **

**CLASSROOM EXAMPLE 2 Factoring a Polynomial Given a Zero**

Factor  into linear factors given that 5 is a zero.

**CLASSROOM EXAMPLE 4 Finding a Polynomial Function That Satisfies Given Conditions (Real Zeros)**

Find a polynomial function  of degree 3 with real coefficients that satisfies the given conditions.

**(a)** Zeros of −3, −2, and 5; 

**(b)** 4 is a zero of multiplicity 3; 

**CLASSROOM EXAMPLE 5 Finding A Polynomial Function That Satisfies Given Conditions (Complex Zeros)**

Find a polynomial function  of least degree having only real coefficients and zeros –4 and 

**Zeros of a Polynomial Function**

**CLASSROOM EXAMPLE 6 Finding All Zeros Given One Zero**

Find all zeros of  given that  is a zero.