

**The Fundamental Theorem of Algebra** – in book: Section 7.6 p. 473

**Find the real zeros of each function, then factor the function completely.**

1.  $f(x) = x^3 - 4x^2 + x + 6$

2.  $f(x) = x^4 + 3x^3 - 27x^2 - 59x - 30$

3.  $f(x) = x^3 - x^2 + 9x - 9$

4.  $f(x) = x^2 - 8x + 20$

5.  $f(x) = x^2 - x - 42$

6.  $f(x) = x^4 + 25x^2 - 90x - 296$

**Write the polynomial equation of least degree for each set of roots given.**

7. 3,  $-\frac{1}{2}$ , 1

8. 3, 3, 1, -2

9.  $-1$ ,  $3 \pm i$ ,  $2 \pm 3i$