Trig/PreCalc Sec 2.4

Find all real zeros by making the list of all the possibilities; use synthetic division after you find a zero; repeat if necessary until you have a quadratic equation left to solve. Write the completely factored form of the equation along with all of the solutions.

1.
$$x^3 - 2x^2 - 5x + 6 = 0$$

2.
$$x^4 + x^3 - 14x^2 - 2x + 24 = 0$$

3.
$$x^3 - 2x^2 - 7x - 4 = 0$$

4.
$$x^4 - 8x^2 + 7 = 0$$