Graphing Polynomials #1-8

For each polynomial:
- use synthetic division or long division to factor the polynomial
- write the equation of the polynomial in factored form
- list the zeros/multiplicities

- determine the end behavior
- sketch the graph

1. $f(x) = 2x^3 + x^2 - 5x + 2$ $factor: (x+2)$	2. $f(x) = -3x^3 - 2x^2 + 19x - 6$ $factor: (x-2)$
3. $f(x) = x^4 - 4x^3 - 15x^2 + 58x - 40$ $factors: (x-5), (x+4)$	4. $f(x) = -x^4 + 9x^3 - 22x^2 + 32$ $factors: (x-4), (x+1)$
5. $f(x) = 6x^3 + 41x^2 - 9x - 14$ $factor: (2x+1)$	6. $f(x) = 12x^5 + 65x^4 + 59x^3 - 103x^2 - 51x + 18$ $factors: (4x-1), (x+3)^2$

Determine which method can be used to divide the polynomials and explain why. Divide the polynomial using the appropriate method and state if the factor given is a factor of the polynomial. Explain how you know it is a factor. IF possible, find the remaining zeros and sketch the graph.

 A. long division B. synthetic division C. either method

7. $f(x) = 6x^5 + 4x^3 - 1x^2 - 9x - 1$ $factor: (2x^2 + 1)$	8. $f(x) = 2x^3 - 3x^2 - 39x + 20$ $factor: (2x-1)$