Pre-Cal CW 2.2-2.3 Polynomial Functions and their Zeros

Use the Leading Coefficient Test to describe the end behavior of the graph of:

1. $y = -x^5 + 3x^4 - x$

Sketch the graph of each given polynomial function:

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

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

Find the polynomial function with the given zeros:

4. $0, 2, \text{ and } 2-\sqrt{3}$

Divide:

5. $\dfrac{x^4 - x^2 + 5x - 7}{x^2 - 3x + 1}$

6. If $f(x) = -2x^4 - 3x^3 - x + 7$ is divided by $(x+2)$, what is the remainder?

7. Based on your answer in #6, is $(x+2)$ a factor of $f(x) = -2x^4 - 3x^3 - x + 7$?

8. Given that $x = 1$ is a zero of $f(x) = x^3 - 3x^2 - 2x + 4$, find the remaining zeros.