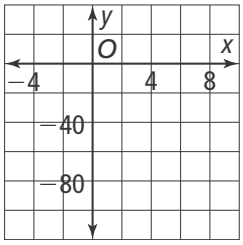
Name _____

3-5 Additional Practice

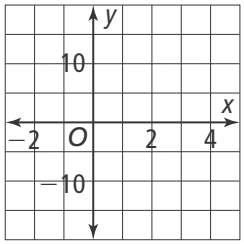
Zeros of Polynomial Functions

Sketch the graph of the function by finding the zeros. List the zeros.

1. $f(x) = 2x^3 - 12x^2 - 6x$



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



Find the zeros of each function, and describe the behavior of the graph of the function at each zero.

3. $x^3 - 8x^2 + 18x$

4. $x^3 + x^2 - 3x + 1$

What are all the real and complex zeros of each polynomial function.

5. $f(x) = x^3 - 6x^2 - 7x - 3$

6. $f(x) = x^3 - x^2 - 2x + 8$

7. A company sells toys. Their profit P, in thousands of dollars, is a function of the number of toys sold, x, measured in hundreds. Profit is modeled as: $P(x) = -4x^3 + 32x^2 - 64$. What do the key features of the graph reveal about the profits? What is the maximum profit the company can make?

What values of x solve the inequalities below?

8. $x^3 - 27x < 0$

9. $x^3 + 9x^2 - 10x > 0$

10. How could you use your graphing calculator to determine that $f(x) = (x - 1)(x - 6)(x + 3)$ is not the correct factorization of: $f(x) = x^3 + 7x^2 + 4x - 12$. Explain.