1. If possible, write the function $f(x) = 2x^2 - x - 2$ in the form $f(x) = a(x - r_1)(x - r_2)$ where a, r_1 and r_2 are real numbers. If it is not possible to write f in this form, explain how you know.

2. Let $f(x) = -27(x + 4)^5(x + 2)^2(x - 1)(x - 3)^3(x^2 + 3x + 5)$.

   a. What is the degree of f?

   b. Is $f(2)$ positive, negative, or zero?

   c. Write a power function (in the form $g(x) = ax^n$) where the graph of f and the graph of g have the same end behavior.

3. The following graph is that of the function $f(x) = x^4 + 3x^3 - 9x^2 - 23x - 12$. Using the graph, guess the factorization of f. Check your answer by multiplying out your guess.
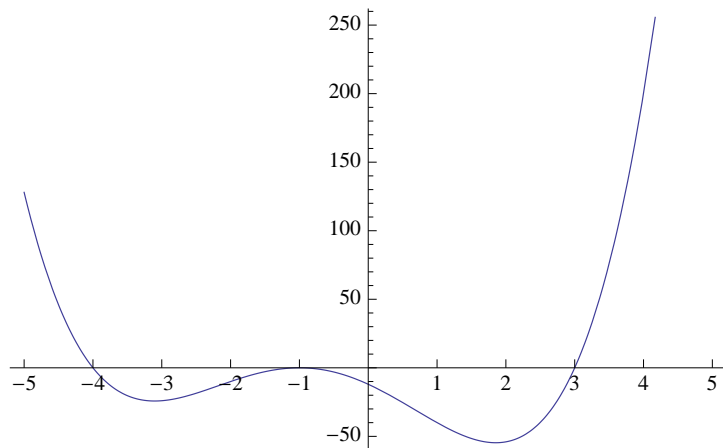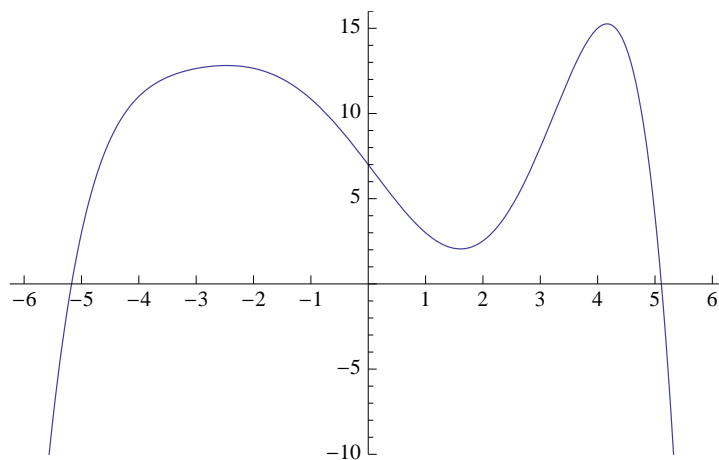
4. The graph of a polynomial function $y = f(x)$ is shown.
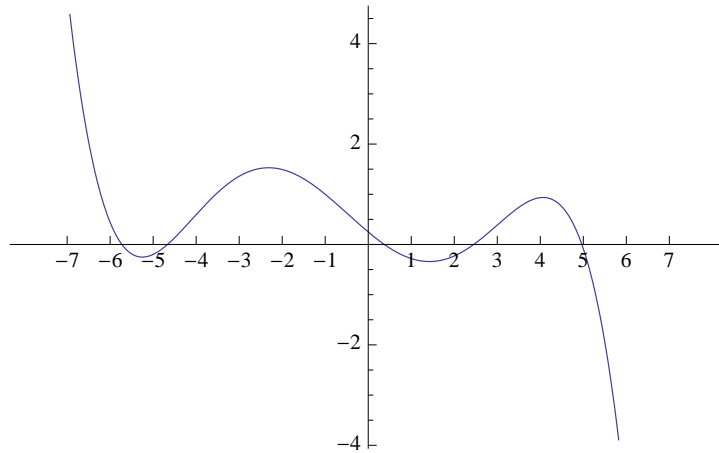
Answer each question.

a. Is the degree of f even or odd?

b. Is the leading coefficient positive or negative?

c. What is the smallest possible degree of f?

5. The graph of a polynomial function $y = g(x)$ is shown.

Answer each question.

a. Is the degree of g even or odd?

b. Is the leading coefficient positive or negative?

c. What is the smallest possible degree of g?