

# Worksheet 10

## Sections 3.2 and 3.6

### Section 3.2

**Problem 1.** Sketch the graph of the polynomial function. Make sure your graph shows all intercepts and exhibits the proper end behavior.

$$P(x) = -2x(x - 2)^2.$$

**Problem 2.** Sketch the graph of the polynomial function. Make sure your graph shows all intercepts and exhibits the proper end behavior.

$$P(x) = -3x^4 + 9x^2 + 12.$$

### Section 3.6

**Problem 3.** Use transformation of the graph of  $f(x) = 1/x$  to graph the rational function. Please state the range and the domain.

$$g(x) = \frac{3x - 3}{x + 2}.$$

**Problem 4.** Consider the rational function below. Find the intercepts and the asymptotes, and then sketch a graph of the rational function. Please state the domain and the range.

$$r(x) = \frac{-2x^2 - 8x - 9}{x^2 + 4x + 4}.$$

**Problem 5.** Consider the rational function below. Find the intercepts and the asymptotes, and then sketch a graph of the rational function. Please state the domain and the range.

$$r(x) = \frac{4x - 8}{(x - 4)(x + 1)}.$$