Name: _____

Section: 322 □   323 □

1. Determine the domain of

$$f(x) = \frac{\sqrt{x+1}}{x^2 - x}.$$

2.

$$f(x) = \begin{cases} x^2 & x \geq 0 \\ -x & x < 0 \end{cases}$$

a. Graph the function $f(x)$.

b. Let $g(x) = f(f(x))$. Compute $g(2), g(0), g(-2)$.

3. Suppose the annual revenue, in millions of dollars, of a company is $R(t) = t^2 + 2t + 1$ where t is measured in years and $t = 0$ corresponds to the year 2000. The annual cost, in millions of dollars, for the company is $C(t) = 2t + 1$.

a. Find the formula for the profit function $P(t)$.

b. What is the average profit over the first four years (2000-2004)?