**1.** Find the most general antiderivative of the function. (*Check your answer by differentiation.*)

**(a)** $f(x) = 3\sqrt{x} - 2\sqrt[3]{x}$

**(b)** $h(\theta) = 2\sin\theta - \sec^2\theta$

**(c)**

$$f(x) = \frac{2x^4 + 4x^3 - x^2}{x^3}, \qquad x > 0$$

**2.** Find $f$.

**(a)** $f'(t) = 4/(1+t^2), \quad f(1) = 0$

**(b)** $f''(x) = 8x^3 + 5, \quad f(1) = 0, \quad f'(1) = 8$

**3.** The graph of $f'$ is shown in the figure. Sketch the graph of $f$ if $f$ is continuous and $f(0) = -1$.