

Given the function and its derivatives below, use the Curve Sketching Summary and follow the examples from class to find all relevant data and sketch the curve. [Note: The following problems are #17, 23, 29, & 39 in Section 3.5.]

$$\mathbf{17.} \quad f(x) = \frac{x-1}{x^2} \qquad f'(x) = \frac{2-x}{x^3} \qquad f''(x) = \frac{2(x-3)}{x^4}$$

$$\mathbf{23.} \quad f(x) = \sqrt{x^2 + x - 2} \qquad f'(x) = \frac{2x+1}{2\sqrt{x^2 + x - 2}} \qquad f''(x) = \frac{-9}{4(x^2 + x - 2)^{3/2}}$$

**29.**  $f(x) = x - 3x^{1/3}$

$$f'(x) = \frac{x^{2/3} - 1}{x^{2/3}}$$

$$f''(x) = \frac{2}{3x^{5/3}}$$

**39.**  $f(x) = \frac{\sin x}{1 + \cos x}$

$$f'(x) = \frac{1}{1 + \cos x}$$

$$f''(x) = \frac{\sin x}{(1 + \cos x)^2}$$