

Lecture Handout #11: Oct 6

Derivatives of Power Functions

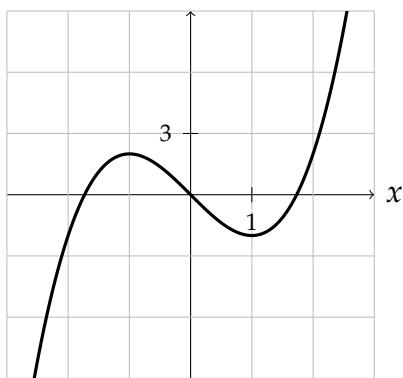
$$\begin{array}{ll} f(x) & f'(x) \\ \hline x & \quad \\ x^2 & \quad \\ x^3 & \quad \end{array}$$

$$\begin{array}{ll} f(x) & f'(x) \\ \hline \quad & \quad \\ \quad & \quad \\ \quad & \quad \end{array}$$

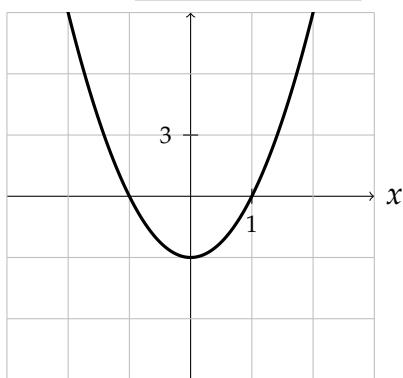
$$\begin{array}{ll} f(x) & f'(x) \\ \hline \quad & \quad \\ \quad & \quad \\ \quad & \quad \end{array}$$

Graphs of First and Second Derivatives

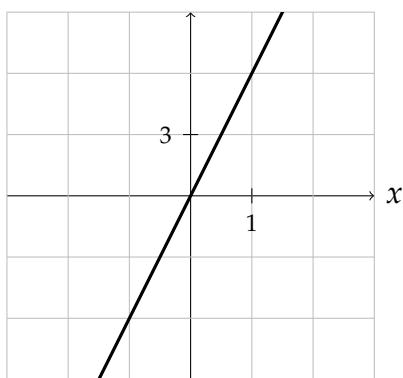
$$f(x) = x^3 - 3x$$



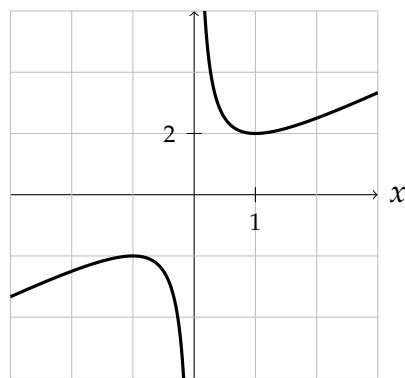
$$f'(x) = \underline{\hspace{2cm} 3x^2 - 3 \hspace{2cm}}$$



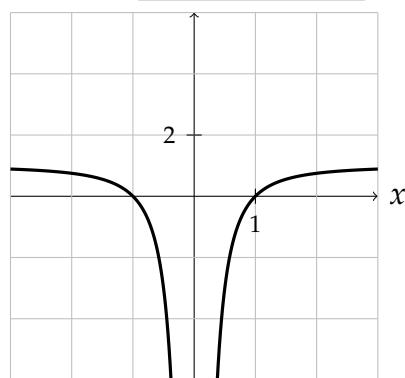
$$f''(x) = \underline{\hspace{2cm} 6x \hspace{2cm}}$$



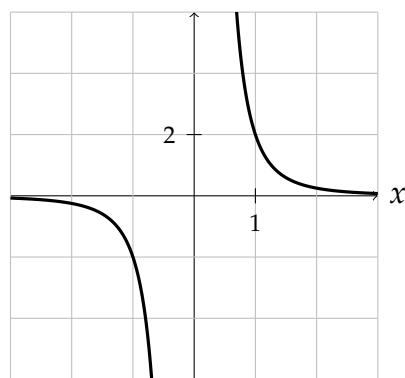
$$g(x) = x + 1/x$$



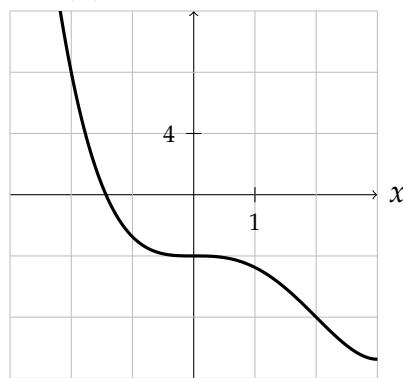
$$g'(x) = \underline{\hspace{2cm} 1 - 1/x^2 \hspace{2cm}}$$



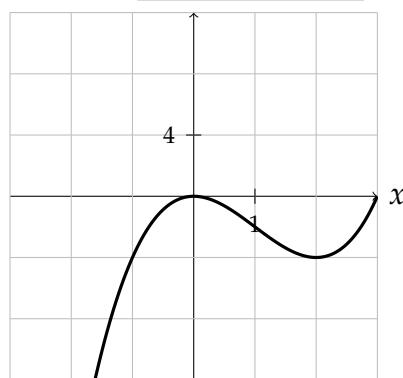
$$g''(x) = \underline{\hspace{2cm} 2/x^3 \hspace{2cm}}$$



$$h(x) = x^4/4 - x^3 - 4$$



$$h'(x) = \underline{\hspace{2cm} x^3 - 3x^2 \hspace{2cm}}$$



$$h''(x) = \underline{\hspace{2cm} 3x^2 - 6x \hspace{2cm}}$$

