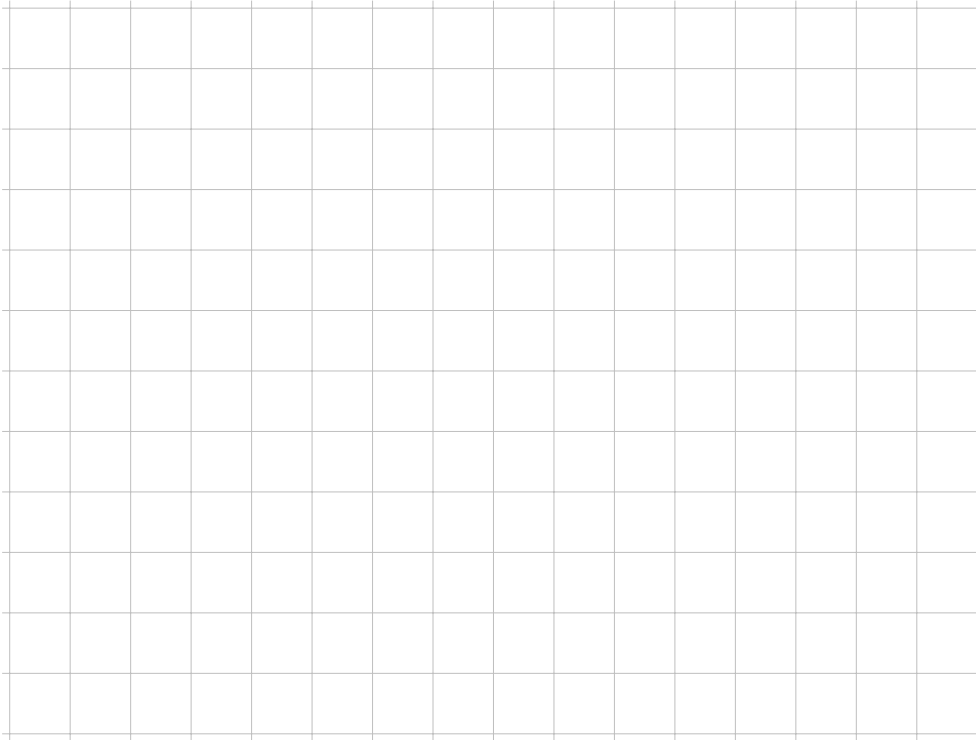


THE SHAPES OF GRAPHS AND ABSOLUTE EXTREMES

1. Sketch the graph of a function $y = f(x)$ such that all of the following are true:

- a) $f'(-2) = 0$ and $f''(-2) > 0$
- b) $f(0) = 1$, $f'(0) = 0$, and $f''(0) < 0$
- c) $f'(3) > 0$ and $f''(3) < 0$
- d) $\lim_{x \rightarrow \infty} f(x) = 0$



2. Why does $f(x) = x - \frac{1}{x}$ not have an absolute minimum on the interval $(0, 2]$? Does it have an absolute maximum?

- 3.** Find the absolute minimum and maximum of $f(x) = x - 3x^{2/3}$ over the interval $[-1, 10]$. It may help to know that $f(10) \approx -3.9248$.