

6. [6 points] On the axes below, sketch the graph of a single function  $y = f(x)$  with all of the following properties:

- The domain of  $f(x)$  is  $-5 \leq x < \infty$ .
- The range of  $f(x)$  is  $-3 \leq x < 3$ .
- $f(x)$  is concave down on the interval  $-5 \leq x \leq -3$ .
- $f(x)$  is decreasing on the interval  $-4 \leq x \leq -1$ .
- The average rate of change of  $f(x)$  between  $x = -1$  and  $x = 3$  is  $1/2$ .
- $f(x) \rightarrow 3$  as  $x \rightarrow \infty$

