

6. [12 points] On the axes provided below, sketch the graph of a single function  $y = h(x)$  satisfying all of the following:

- $h(x)$  is defined for all  $x$  in the interval  $-5 < x < 5$ .
- $h'(x) > 0$  for all  $x < -3$ .
- $\lim_{x \rightarrow -2} h(x) = 0$ .
- $h(-2) = -3$ .
- The average rate of change of  $h(x)$  between  $x = -1$  and  $x = 1$  is 2.
- $h(1) = 2$ .
- $h(x)$  is linear between  $x = 1$  and  $x = 3$ .
- $h'(2) = -1$ .
- $\lim_{x \rightarrow 4^-} h(x) = -1$ .
- $\lim_{x \rightarrow 4} h(x)$  does not exist.
- $h'(x) < 0$  for all  $x > 4$ .

Make sure that your sketch is large and unambiguous.

