

2. [10 points] On the axes provided below, sketch the graph of **one** possible function  $y = f(x)$ , satisfying all of the following requirements. Your graph should clearly show the properties listed below to receive full credit.

- The domain of  $f(x)$  is the interval  $-6 < x < 6$ .
- The range of  $f(x)$  is  $-5 < y \leq 4$ .
- $f(-4) = -3$ .
- $f(x)$  has a constant rate of change for  $-6 < x < -3$ .
- $f(x)$  is increasing on the interval  $-3 < x < 0$ .
- The average rate of change of  $f(x)$  is  $-1$  for  $0 \leq x \leq 2$ .
- $f(x)$  has a zero at  $x = 3$ .
- The graph of  $f(x)$  is concave up for  $2 < x < 6$ .
- $f(x)$  is decreasing for  $2 < x < 6$ .

