Exercise 1
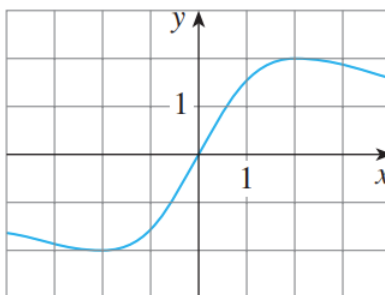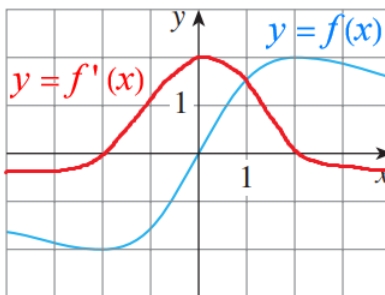
Use the given graph to estimate the value of each derivative. Then sketch the graph of f'.

(a) $f'(-3)$ (b) $f'(-2)$ (c) $f'(-1)$ (d) $f'(0)$

(e) $f'(1)$ (f) $f'(2)$ (g) $f'(3)$

Solution

The value of $f'(x)$ is the slope of the tangent line to $f(x)$.

Use this approximate graph to give estimates of $f'(x)$ at each value of x.

$$f'(-3) \approx -0.2$$
$$f'(-2) \approx 0$$
$$f'(-1) \approx 1.2$$
$$f'(0) \approx 2$$
$$f'(1) \approx 1.5$$
$$f'(2) \approx 0$$
$$f'(3) \approx -0.2$$