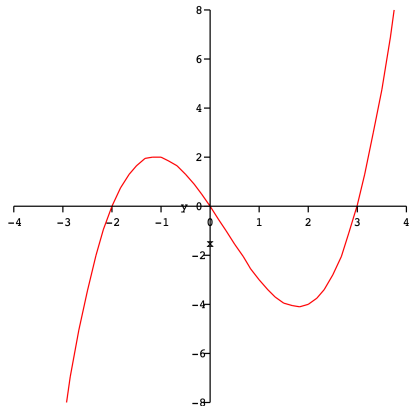


1. The graph of $f'(x)$ shown at the right. This is *not* the graph of $f(x)$!

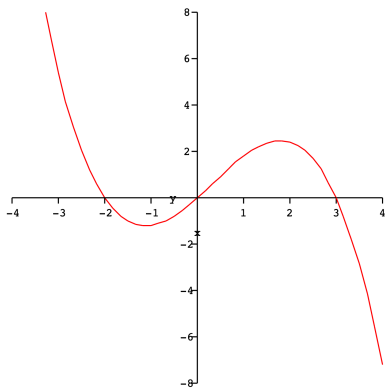
- (a) Where does f have critical points?
- (b) On which intervals is f increasing? decreasing?
- (c) Where does f achieve local maxima? local minima?
- (d) Where is f concave up? concave down?
- (e) Where does f have inflection points?
- (f) Suppose that $f(0) = 0$. Sketch a graph of f .
- (g) How does the graph change if $f(0) = 3$?



Plot of $y = f'(x)$

2. The graph of $f''(x)$ is shown at the right. This is *not* the graph of $f(x)$ or $f'(x)$!

- (a) Where is f concave up? concave down?
- (b) Where does f have inflection points?
- (c) Suppose that $f'(-1) = 0$ and $f'(1) = 0$.
If possible, classify $x = -1$ and $x = 1$ as local maxima or local minima of f .
- (d) Suppose that $f'(0) = 0$. Is f increasing or decreasing at $x = 1$? at $x = -1$?
- (e) Suppose that $f'(-1) = -2$ and $f(-1) = 2$.
Could $f(0) = 3$?
- Hint:* Can you determine if f is increasing or decreasing on the interval $[-1, 0]$?



Plot of $y = f''(x)$