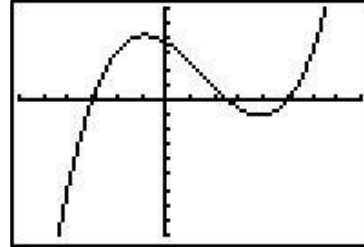


Chapter 3 Review: Sample Test questions

For the following, estimate answers to the nearest tenths when necessary.

1. Suppose the given graph is the graph of $f'(x)$.

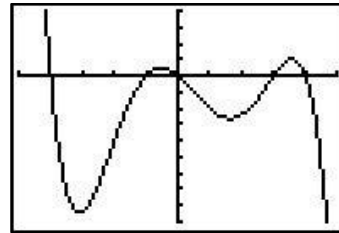
- Determine the intervals where $f(x)$ is increasing.
- Determine the intervals where $f(x)$ is concave up.



$f'(x)$

2. Suppose the given graph is the graph of $f(x)$.

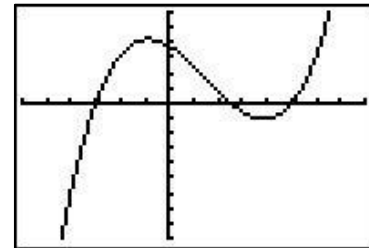
- Determine where the graph is concave up.
- Determine where the graph is decreasing.



$f(x)$

3. Suppose the given graph is the graph of $f''(x)$.

- Determine where the graph of $f(x)$ is concave down.
- Suppose $x = -4$ is a critical number, according to the 2nd Derivative test for relative extrema, is it a relative max or relative min? Why?



$f''(x)$

4. Find the absolute extrema of $f(x) = 2x^3 + 3x^2 - 12x + 4$ on $[-4, 2]$.

- absolute max at $x = -2$; absolute min at $x = 1$
- absolute max at $x = 2$; absolute min at $x = -4$
- absolute max at $x = -4$; absolute min at $x = -2$
- absolute max at $x = -2$; no absolute min
- none of the above

5. Which of the following is true about $f(x) = x(6-x)^{\frac{2}{3}}$? $f(x)$ has:

- no relative extrema
- 1 relative extrema (a relative max)
- 2 relative extrema (a relative max and a relative min)
- 1 relative extrema (a relative min)
- none of the above