5. The graph on the left below (Figure 1) depicts a derivative function, f'. The graph indicates the full behavior of f' — *i.e.*, f' does not have changes in direction that are not shown in the figure.

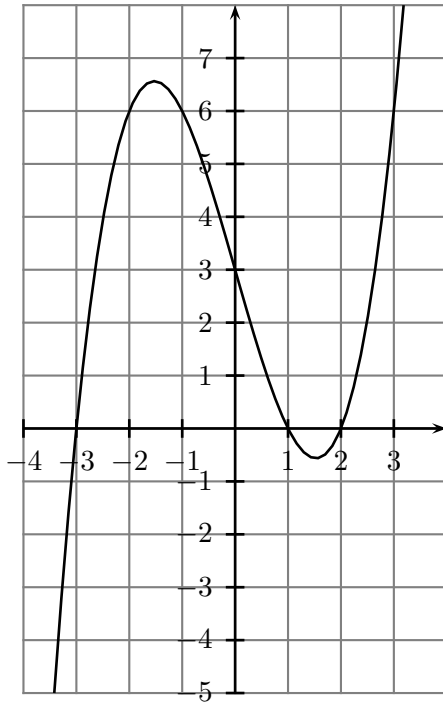
Figure 1: graph of f'
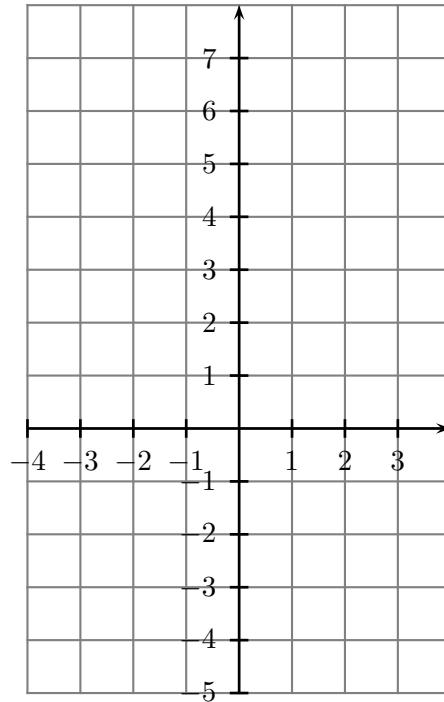

Figure 2

(a) (4 points) Using the axes provided in Figure 2 above, sketch a graph of $f''(x)$.

(b) (4 points) On which interval(s) is the original function f increasing?

(c) (2 points) On which which interval(s) is f concave up?

(d) (4 points) If $f(-2) = 3$, approximate $f(-1)$.