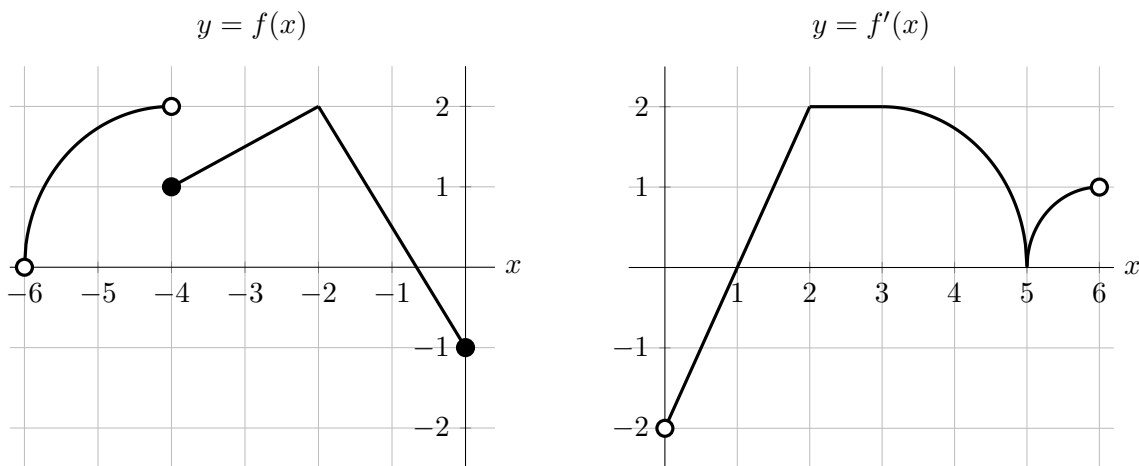**6.** [14 points] The function $f(x)$ is defined on the interval $-6 < x < 6$. The graphs of $f(x)$ and its derivative $f'(x)$ are shown below on the intervals $(-6, 0]$ and $(0, 6)$ respectively. All the graphs consist of line segments and quarters of circles.

$$y = f(x) \qquad\qquad y = f'(x)$$

The function $f(x)$ is continuous at $x = 0$. In the following questions, your answers must be **exact**. If any of the answers are undefined write "UND". If there is not enough information to answer a question, write "NEI"

a. [2 points] Find $\lim\limits_{x \to 4^+} (5f(-x) + 3)$.

Answer: _____.

b. [2 points] Find $\lim\limits_{x \to -\infty} f(-4 - 2^x)$.

Answer: _____.

c. [2 points] On which interval(s) in $-6 < x < 6$ is the function $f(x)$ is decreasing?

Answer: _____.

d. [3 points] At which value(s) of $-6 < x < 6$ is the function **not** differentiable?

Answer: _____.

e. [3 points] Find the coordinates (x, y) of the global maximum of $f(x)$ for $0 \le x \le 5$. Show your work.

Answer: $x =$_____ $y =$_____.

f. [2 points] At which value(s) of $-6 < x < 6$ does the function $f(x)$ have an inflection point?

Answer: _____.