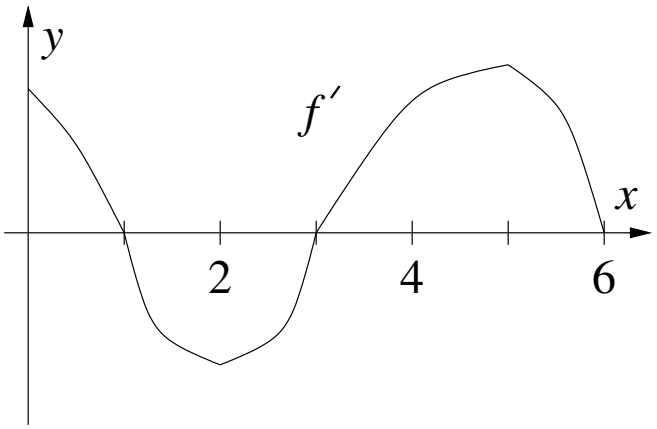
Class prep quiz on section 4.3, Stewart's Calculus (8th ed.)

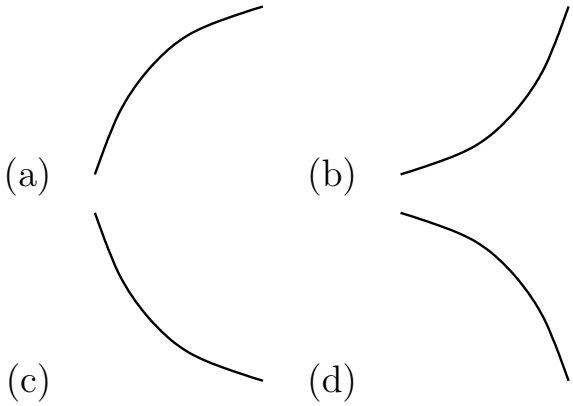


Suppose $f(x)$ is a function whose **DERIVATIVE** $f'(x)$ has domain $[0, 6]$ and the graph shown above.

1. For which values of x is $f(x)$ **increasing**?
   (a) $0 < x < 1$ and $3 < x < 6$ (b) $1 < x < 3$
   (c) $0 < x < 2$ and $5 < x < 6$ (d) $2 < x < 5$

2. For which values of x is $f(x)$ **concave down** (i.e., $\frown$)?
   (a) $0 < x < 1$ and $3 < x < 6$ (b) $1 < x < 3$
   (c) $0 < x < 2$ and $5 < x < 6$ (d) $2 < x < 5$

3. Which of the following curves most closely resembles the portion of the graph of $f(x)$ with $2 \leq x \leq 3$?



4. Suppose $g(x)$ is a function whose **DERIVATIVE** is $g'(x) = \cos(x^2)$. Which of the following descriptions best matches the graph of $g(x)$ on the interval $[0, \sqrt{\pi}]$?

   (a) Decreasing for $0 < x < \sqrt{\pi}$, concave down for $0 < x < \sqrt{\pi}$

   (b) Decreasing for $0 < x < \sqrt{\pi}$, concave down for $0 < x < \sqrt{\frac{\pi}{2}}$, decreasing for $\sqrt{\frac{\pi}{2}} < x < \sqrt{\pi}$

   (c) Increasing for $0 < x < \sqrt{\frac{\pi}{2}}$, decreasing for $\sqrt{\frac{\pi}{2}} < x < \sqrt{\pi}$, concave down for $0 < x < \sqrt{\pi}$

   (d) Increasing for $0 < x < \sqrt{\frac{\pi}{2}}$, decreasing for $\sqrt{\frac{\pi}{2}} < x < \sqrt{\pi}$, concave down for $0 < x < \sqrt{\frac{\pi}{2}}$, decreasing for $\sqrt{\frac{\pi}{2}} < x < \sqrt{\pi}$