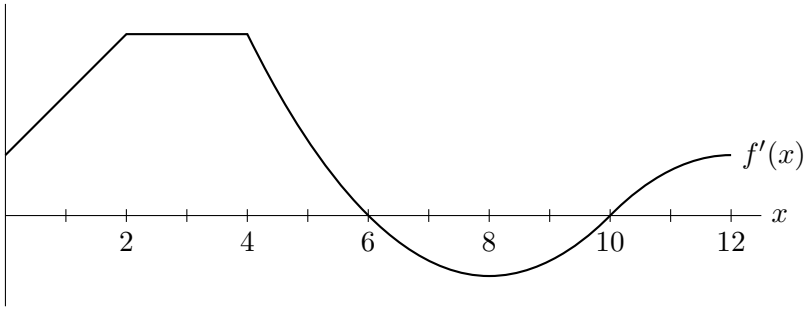
10. [10 points] The graph of $f'(x)$, the ***derivative*** of a function $f(x)$, is shown below.



For each of the following questions, circle ALL correct answers. You do not need to show work for this problem.

a. [2 points] On which of the following intervals is $f(x)$ increasing?

$\boxed{0 < x < 2}$ $\boxed{2 < x < 4}$ $\boxed{4 < x < 6}$ $6 < x < 8$ $8 < x < 10$ $\boxed{10 < x < 12}$

b. [2 points] On which of the following intervals is $f(x)$ concave down?

$0 < x < 2$ $2 < x < 4$ $\boxed{4 < x < 6}$ $\boxed{6 < x < 8}$ $8 < x < 10$ $10 < x < 12$

c. [2 points] On which of the following intervals is $f(x)$ linear?

$0 < x < 2$ $\boxed{2 < x < 4}$ $4 < x < 6$ $6 < x < 8$ $8 < x < 10$ $10 < x < 12$

d. [2 points] On which of the following intervals is $f''(x)$ increasing?

$0 < x < 2$ $2 < x < 4$ $\boxed{4 < x < 6}$ $\boxed{6 < x < 8}$ $\boxed{8 < x < 10}$ $10 < x < 12$

e. [2 points] Suppose $f(0) = -4$. Which of the following statements could be true?

$f(6) < -4$ $f(6) = -4$ $\boxed{f(6) > -4}$