

Names: _____

Read carefully, and assume only that $f(x)$ is a function and that $[a, b]$ is an interval in the domain of f (where a is the left endpoint, and b is the right endpoint).

- Answer True/False
- Explain your reasoning briefly after each question.
- You may want to make some sketches of graphs.

1. If the *net change* in f over the interval $[a, b]$ is positive, then f must be increasing on $[a, b]$.
 - (a) True or False?
 - (b) Explain your reasoning (in complete sentence/s).
2. (with typo correction) If f is increasing over the interval $[a, b]$, then the *net change* in f over $[a, b]$ must be positive.
 - (a) True or False?
 - (b) Explain your reasoning (in complete sentence/s).
3. If the *net change* in f over the interval $[a, b]$ is positive, then the average rate of change in f over $[a, b]$ must be positive as well.
 - (a) True or False?
 - (b) Explain your reasoning (in complete sentence/s).