Supplement 6 for Section 4.3

Replace the material at the on page 199 with the definition presented here.

Definition 1. Let f be defined on and interval I.
1. Then f is increasing on I means for each pair $a < b \in I$, $f(a) < f(b)$.
2. Then f is decreasing on I means for each pair $a < b \in I$, $f(a) > f(b)$.

It should be obvious that f is increasing on an interval I if and only if $-f$ is decreasing on I.

Corollary 3. *Let f be continuous on an interval I and differentiable on the interior of I.*
1. If $f'(x) > 0$ for all x in the interior of I, then f is increasing on I.
2. If $f'(x) < 0$ for all x in the interior of I, then f is decreasing on I.

In the first line of the proof in the textbook on page 119, simply replace, $[a, b]$ by I.