

Mean Value Theorem Homework

Due Friday, Oct. 16

Math 2250, 94-456

1. Use Rolle's Theorem to give a proof of the Mean Value Theorem. (Hint: follow the proof in our textbook.)
2. Use the Mean Value Theorem to explain why $\ln(x^a) = a \ln(x)$ for any number a . (Hint: follow the explanation in our textbook.)
3. Use the Mean Value Theorem to prove the following:
If f is a continuous and differentiable function on the interval (a, b) , and if $f'(x) > 0$ for all $x \in (a, b)$, then f is an increasing function on (a, b) .
(Hint: this is also found in our textbook.)