1. (5 points) State The Extreme Value Theorem. If $f$ is on a closed interval $[a, b]$, then

Solution: If $f$ is continuous on a closed interval $[a, b]$, then $f$ attains an absolute maximum and an absolute minimum on $[a, b]$.

2. (5 points) State the Mean Value Theorem. If $f$ is on a closed interval $[a, b]$ and on the interval’s interior $(a, b)$, then there is at least one point $c$ in $(a, b)$ at which

Solution: If $f$ is continuous on a closed interval $[a, b]$ and differentiable on the interval’s interior $(a, b)$ then there is at least one point $c$ in $(a, b)$ at which

$$f'(c) = \frac{f(b) - f(a)}{b - a}.$$