

Keeper 5.3 Virtual Problems

Examples:

Find and Classify all Critical numbers: $f(x) = \frac{4x}{x^2+1}$

Examples:

Find the absolute maximum and absolute minimum values of the function on the given interval.

2. $r(\theta) = \sin^2(2\theta), \left[\frac{\pi}{6}, \frac{\pi}{3}\right]$

3. $f(x) = x^2 + \frac{2}{x}$ on $\left[\frac{1}{2}, 2\right]$

4. $y = x^4 - 8x^2, [-1, 3]$

5. $y = xe^{-x}, [-2, 2]$

Keeper 5.4 Virtual Problems

Examples:

1. The Mean Value Theorem guarantees the existence of a special point on the graph of $y = \sqrt{x}$ between $(0,0)$ and $(4,2)$. What are the coordinates of this point?
2. Let f be the function given by $f(x) = x^3 - 3x^2$. What are all values of c that satisfy the conclusion of the Mean Value Theorem of differential calculus on the closed interval $[0,3]$?
3. Let $f(x) = x^2 - 5x + 7$. What are all values of c that satisfy the conclusion of the Mean Value Theorem on the closed interval $[-1,3]$.
4. Let $f(x) = \ln(x^2 + 2x + 4)$. Use your calculator to find all values of c that satisfy the conclusion of the Mean Value Theorem in the interval $[-4,3]$