

MAT 136 (Calculus I) Prof. Swift
In-class worksheet: Critical points and Local Extrema

Consider the function $f(x) = \frac{1}{3}x^3 + x^2 - 3x + 4$.

1. Complete the sentence: $f'(x) =$
2. Find all of the critical points of f .
3. Sketch $y = f'(x)$. Focus on the x -intercepts of this graph, and the sign of $f'(x)$.
4. Apply the first derivative test to each critical point of f .
5. Find $f''(x)$, and apply the second derivative test to each critical point of f .