MAT 136 (Calculus I) Prof. Swift
In-Class Worksheet: The First Derivative Test to Classify Critical Points

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

1. Compute the derivative $f'(x)$.

2. Find all of the critical points of f.

3. Sketch $y = f'(x)$. Only worry about the x-intercepts, and the sign of $f'(x)$.

4. Apply the first derivative test to each critical point of f.

5. Do steps 1-4 for $g(x) = \frac{1}{3}x^3 - x^2 + x + 2$.