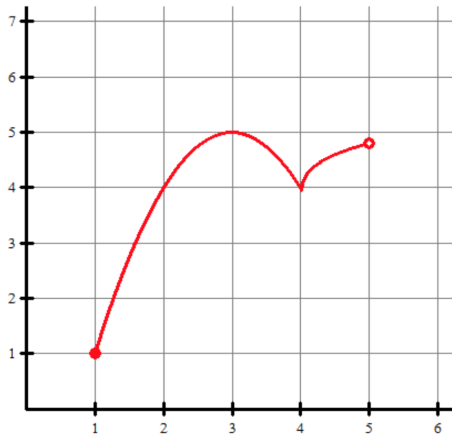


1. Determine all local and global maximums and minimums in the below graph.



2. Find the critical number for below functions (values where derivative is zero or undefined). Then use the Extreme Value Theorem to determine the global extrema on the given interval.

$$f(x) = 4x^3 + 3x^2 - 6x + 1 \text{ on } [-2, 1]$$

$$g(x) = \frac{x}{x-2} \text{ on } [-3, 3]$$

3. Determine the intervals where the function is increasing and decreasing. Then determine all relative extrema using the First Derivative Test.

$$f(x) = 4x^3 + 3x^2 - 6x + 1$$

$$g(x) = x - \sqrt[3]{x}$$

$$h(x) = \cos^2(x)$$

4. Show $y = ax^2 + bx + c$ has exactly one critical point. Find it. When is it a maximum/minimum?