

YOUR NAME: \_\_\_\_\_

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Find the following limits:

(a)  $\lim_{x \rightarrow 0} \frac{1 - e^{-2x}}{\sec x}$

(b)  $\lim_{x \rightarrow 0^+} (\sin x \ln x)$

2. Find the critical numbers of the function  $f(x) = \sqrt[3]{x^2 - x}$ .

3. Find the absolute maximum and the absolute minimum of the function  $f(x) = x^3 - 6x^2 + 9x + 2$  in  $[-1, 4]$ .