

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 limit $\lim_{x \rightarrow 1} \frac{e^x - e}{\ln x}$.

2. Find the domain, the asymptotes, created the combined sign table for first and second derivatives and sketch the graph of $f(x) = \frac{x^3 + 1}{x}$.