

Work each problem in the space provided. If more space is needed, write "see back" on the problem and use the back of the page. Show all work for each problem. Your exam grade will be based on your score out of 200 points. Any points earned in excess of 200 will be allocated as bonus points.

1. Find the following limits if the limit is a finite number, ∞ , or $-\infty$. Otherwise, show the limit does not exist.

A. (6 points)

$$\lim_{x \rightarrow \infty} \frac{e^x}{x^2}$$

B. (8 points)

$$\lim_{x \rightarrow 0} (1 - 3 \sin x)^{\frac{1}{x}}$$

C. (6 points)

$$\lim_{x \rightarrow 1^+} (x-1) \csc(\pi x)$$

D. (8 points)

$$\lim_{x \rightarrow 0} \frac{e^{3x} - e^{-3x} - 6x}{7x^2}$$