

**Bonus Question 3**

Due Monday, February 7

(This question is worth 3 bonus points.)

Define a function  $F(x)$  by

$$F(x) = \int_1^x \frac{1}{t^2} dt.$$

1. Evaluate the following:

$$\lim_{x \rightarrow \infty} \left( \frac{d}{dx} F(x) \right).$$

2. Evaluate the following:

$$\lim_{x \rightarrow \infty} (F(x)).$$