

Name _____

You have 12 minutes for this quiz.

1. (4 points) Rudy wants to enclose a 100 square foot rectangular region to be used for a garden. He will use fencing which costs \$16 per foot along three sides, and fencing which costs \$34 per foot along the fourth side. Let x represent the length of that fourth side.

(a) Find a formula for the total cost of all the fencing as a function of x .

(b) Find the dimensions which give the minimum total cost.

(c) Find the minimum total cost.

2. (4 points) Evaluate the following limits. Show sufficient work to justify your answer.

(a) $\lim_{x \rightarrow 0} \frac{e^{6x} - 1 - 6x}{4x^2}$

(b) $\lim_{x \rightarrow \infty} x \sin\left(\frac{1}{x}\right)$

3. (2 points) Evaluate the following limits. No work needs to be shown.

(a) $\lim_{x \rightarrow \infty} \frac{10e^x}{x^{250}}$

(b) $\lim_{x \rightarrow \infty} \frac{\ln x}{\sqrt[3]{x}}$