Calculus I	Name:
Study Guide 4	Class:
Due Date:	Score:

No Work $\Leftrightarrow$ No Points

Use Pencil Only $\Leftrightarrow$ Be Neat & Organized

1. (4 points) For any given $\epsilon > 0$, find $\delta > 0$ such that $\lim\limits_{x \to 4}(2x - 1) = 7$.

1. _____

2. (4 points) For any given $\epsilon > 0$, find $\delta > 0$ such that $\lim\limits_{x \to 5}(3x + 2) = 17$.

2. _____

3. (5 points) For any given $\epsilon > 0$, find $\delta > 0$ such that $\lim\limits_{x \to 1} x^2 = 1$.

3. _____

4. (4 points) Find $\lim\limits_{x \to a} f(x)$ and $\lim\limits_{x \to a} g(x)$ if

$$\begin{cases} \lim\limits_{x \to a} [f(x) - g(x)] = 10 \\ \lim\limits_{x \to a} [f(x) + g(x)] = -2 \end{cases}$$

4. _____

5. (4 points) Find and simplify the difference quotient for $f(x) = \sqrt{x}$, and then evaluate for $h = 0$.

5. _____

6. (4 points) Evaluate $\lim\limits_{x \to 0} f(x)$ if $1 - \dfrac{x^2}{4} \le f(x) \le 1 + \dfrac{x^2}{2}$ for all $x \in \mathbb{R}$.

6. _____

7. (4 points) For any given $\epsilon > 0$, find $\delta > 0$ such that $\lim\limits_{x \to -3}(-5x - 13) = 2.$

7. _____

8. (4 points) For any given $\epsilon > 0$, find $\delta > 0$ such that $\lim\limits_{x \to 0} \sqrt[3]{x} = 0.$

8. _____

9. (4 points) For any given $\epsilon > 0$, find $\delta > 0$ such that $\lim\limits_{x \to 2}(x^2 - 4x) = -4.$

9. _____

10. (4 points) Evaluate $\lim\limits_{x \to a} \dfrac{x^3 - ax^2}{x^2 - a^2}$.

10. _____

11. (4 points) Evaluate $\lim\limits_{x \to 0} \dfrac{\sqrt{2 + 3x} - \sqrt{2 - 3x}}{x}$.

11. _____

12. (5 points) Evaluate $\lim\limits_{h \to 0} \dfrac{f(x + h) - f(x)}{h}$ for $f(x) = \dfrac{1}{x^2}$.

12. _____

Study Guide 4   Total Points: 50