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

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

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1. (4 points) Find $\lim_{x\to a}\sqrt[3]{2f(x)-3g(x)}$ if $\lim_{x\to a} f(x)=-3$ and $\lim_{x\to a} g(x)=-2$.

1. _____

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2. (4 points) Find $\lim_{x\to a} f(x)$ and $\lim_{x\to a} g(x)$ if

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

2. _____

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3. (4 points) For any given $\epsilon > 0$, find $\delta > 0$ such that $\lim_{x \to 4}(2x - 1) = 7$.

3. _____

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

4. _____

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

5. _____

6. (4 points) Evaluate $\lim_{x \to 0} f(x)$ if $1 - \frac{x^2}{4} \leq f(x) \leq 1 + \frac{x^2}{2}$ for all $x \in \mathbb{R}$.

6. _____

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

7. _____

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

8. _____

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

9. _____

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

10. _____

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

11. _____

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

12. _____