

Calculus II

Name: _____

Study Guide 12

Class: _____

Due Date: _____

Score: _____

No Work $\Leftrightarrow$ No Points

Use Pencil Only $\Leftrightarrow$ Be Neat & Organized

1. (3 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow \infty} \frac{x^2 + x - 2}{x^2 - x}$

1. _____

2. (4 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow 0} \frac{1 - \sin x}{\cos x}$

2. _____

3. (5 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow 0} \frac{10^x - 5^x}{x}$.

3. _____

4. (4 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow 0} \frac{\cos mx - \cos nx}{x^2}$

4. _____

5. (4 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow 0} \frac{x}{\tan^{-1}(5x)}$

5. _____

6. (3 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow \infty} \sqrt{x} \cdot e^{-2x}$

6. _____

7. (4 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow 0} (\csc x - \cot x)$

7. _____

8. (4 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow 1^+} [\ln(x^6 - 1) - \ln(x^4 - 1)]$

8. _____

9. (5 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow \infty} \left[1 + \frac{a}{x}\right]^{bx}$

9. _____

10. (5 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow \infty} [e^x + x]^{1/x}$

10. _____

11. (4 points) Use L'Hospital's Rule to evaluate: $\lim_{x \rightarrow 0} \frac{5^x - 4^x}{3^x - 2^x}$

11. _____

12. (5 points) What happens if you try to use L'Hospital's Rule to evaluate $\lim_{x \rightarrow \infty} \frac{x}{\sqrt{x^2 + 1}}$?
Evaluate the limit using another method.

12. _____