

Name: _____ Score: _____

Teacher: _____ Date: _____

L'Hôpital's Rule

For questions 1 – 12 Use L'Hospital's Rule to evaluate each of the following limits.

1. $\lim_{x \rightarrow 2} \frac{x^3 - 7x^2 + 10x}{x^2 + x - 6}$

2. $\lim_{w \rightarrow -4} \frac{\sin(\pi w)}{w^2 - 16}$

3. $\lim_{z \rightarrow 0} \frac{\sin(2z) + 7z^2 - 2z}{z^2(z+1)^2}$

4. $\lim_{x \rightarrow \pi} \frac{x - \pi}{\sin x}$

5. $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x + 3}$

6. $\lim_{x \rightarrow 0} \frac{e^x - x - 1}{x^2}$



7. $\lim_{x \rightarrow 1} \frac{x-1}{\ln x}$

8. $\lim_{x \rightarrow 1} \frac{\sqrt{x} - \sqrt[3]{x}}{x-1}$

9. $\lim_{t \rightarrow \infty} \frac{\ln(3t)}{t^2}$

10. $\lim_{z \rightarrow \infty} \frac{z^2 + e^{4z}}{2z - e^z}$

11. $\lim_{w \rightarrow 0^+} [w^2 \ln(4w^2)]$

12. $\lim_{x \rightarrow 1^+} \left[(x-1) \tan\left(\frac{\pi}{2}x\right) \right]$