

### 4.3 L'Hôpital's Rule

Calculus

Name: \_\_\_\_\_

**CA #1**

Find the following. Use L'Hôpital's when possible.

1. $\lim_{x \rightarrow 2} \frac{x-2}{x^2-7x+10}$	2. $\lim_{x \rightarrow 0} \frac{3x^2}{e^x-1-x}$	3. $\lim_{x \rightarrow 3} \frac{x^2-2x+1}{x-3}$
4. $\lim_{x \rightarrow 0} \frac{x^2}{1-\cos(3x)}$	5. $\lim_{x \rightarrow 4} \frac{x^2+6x-40}{4-x}$	6. $\frac{d}{dx} \frac{3x-2}{5x+1}$
7. $\lim_{x \rightarrow 6} \frac{7-\sqrt{55-x}}{x-6}$	8. $\lim_{x \rightarrow 0} \frac{x+1}{x^2-5x+3}$	9. $\lim_{x \rightarrow 0} \frac{2e^x-2-2x}{1-\cos x}$
10. $\frac{d}{dx} \frac{e^x}{\tan(3x)}$	11. $\lim_{x \rightarrow 1} \frac{5 \ln x^2}{x^2-1}$	12. $\lim_{x \rightarrow 0} \frac{1-\cos(4x)}{\cos(3x)-1}$

Answers to 4.3 CA #1

1. $-\frac{1}{3}$	2. 6	3. Does not exist	4. $\frac{2}{9}$	5. -14	6. $\frac{13}{(5x+1)^2}$
7. $\frac{1}{14}$	8. $\frac{1}{3}$	9. 2	10. $e^x \cot 3x - 3e^x \csc^2 3x$	11. 5	12. $-\frac{16}{9}$