

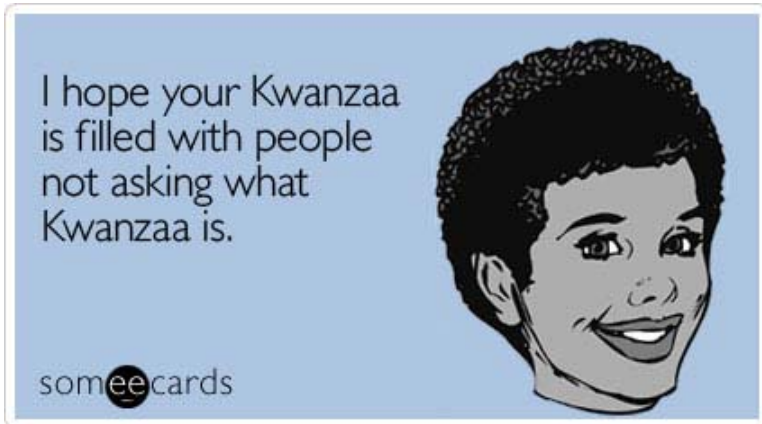
Monday, December 12,

2016 - Late Start!

9.2 - l'Hospital's Rule

HW Check & Questions

l'Hospital's Rule Practice



**Quiz 9.2 Wednesday 12/14**

**Tuesday is 25 Minutes bc of Holiday Concert (3rd Per)**

Using l'Hospital's Rule with One-Sided Limits

Find limit :

$$\textcircled{a} \lim_{x \rightarrow 0^+} \frac{\sin x}{x^2} = \frac{0}{0} \text{ L.R.}$$
$$= \lim_{x \rightarrow 0^+} \frac{\cos x}{2x} = \frac{1}{0} = \infty$$

$$\textcircled{b} \lim_{x \rightarrow 0^-} \frac{\sin x}{x^2} = \frac{0}{0} \text{ L.R.}$$
$$= \lim_{x \rightarrow 0^-} \frac{\cos x}{2x} = \frac{1}{-0} = -\infty$$



$\frac{0}{0}, \frac{\infty}{\infty}$  : Indeterminate

$\frac{\#}{\infty}, \frac{0}{\infty}, \frac{0}{\#} = 0$

$\frac{\infty}{\#}, \frac{\#}{0} = \infty$

[Also  $\infty \cdot 0, \infty - \infty, 1^\infty, 0^0, \infty^0$ ]