

Calculus Warm Up

after sections 2.1 & 2.2 ~ Limits

1. $\lim_{x \rightarrow 0} \frac{\sin x}{x} =$

2. $\lim_{x \rightarrow \pi} \frac{\sin x}{x} =$

3. $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\sin x}{x} =$

4. $\lim_{x \rightarrow \infty} \frac{\sin x}{x} =$

5. $\lim_{x \rightarrow \infty} \frac{2 \sin x + x}{x} =$

6. $\lim_{x \rightarrow \infty} \frac{5x - 3x^2}{x + 2} =$

7. $\lim_{x \rightarrow -\infty} e^{-x} + 2x =$

8. $\lim_{x \rightarrow -\infty} \frac{5x + 1}{|x| - 3} =$

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after sections 2.1 & 2.2 ~ Limits

1. $\lim_{x \rightarrow 0} \frac{\sin x}{x} =$

2. $\lim_{x \rightarrow \pi} \frac{\sin x}{x} = \frac{\sin \pi}{\pi} = \frac{0}{\pi} = 0$

3. $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\sin x}{x} = \frac{\sin(\frac{\pi}{2})}{\frac{\pi}{2}} = \frac{1}{\frac{\pi}{2}} = \frac{2}{\pi}$

4. $\lim_{x \rightarrow \infty} \frac{\sin x}{x} = \frac{\text{small} \neq}{\text{HUGE}} = 0$

5. $\lim_{x \rightarrow \infty} \frac{2 \sin x + x}{x} = \frac{2 \sin x}{x} + \frac{x}{x} = 2 \cdot 0 + 1 = 1$

6. $\lim_{x \rightarrow \infty} \frac{5x - 3x^2}{x + 2} = -\infty$ (E.B.M. $y = -3x$)
 $= \text{d.n.e.}$

7. $\lim_{x \rightarrow -\infty} e^{-x} + 2x = \infty + -\infty = \text{d.n.e.}$

8. $\lim_{x \rightarrow -\infty} \frac{5x + 1}{|x| - 3} = -5$

