

Limits

Advanced

L'Hopital Rule

1. $\lim_{x \rightarrow \infty} \left(\frac{\ln(x)}{x} \right)$

2. $\lim_{x \rightarrow -\infty} (xe^x)$

3. $\lim_{x \rightarrow 0} \left(\frac{\sin(x)}{x} \right)$

4. $\lim_{x \rightarrow 0} \left(\frac{\tan(x)}{2x} \right)$

5. $\lim_{x \rightarrow 0} \left(\frac{1 - \sec^2(7x)}{(3x)^2} \right)$

6. $\lim_{x \rightarrow 0} (x \ln(x))$

7. $\lim_{x \rightarrow 0} \left(\frac{\sin(5x)}{\sin(3x)} \right)$

8. $\lim_{x \rightarrow \infty} \left(\frac{e^x}{x^2} \right)$

9. $\lim_{x \rightarrow 0} \left(\frac{\sin(5x)}{2x} \right)$

10. $\lim_{x \rightarrow 0} \left(\frac{1 - \cos(2x)}{x} \right)$

Answers

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1. 0

2. 0

3. 1

4. $\frac{1}{2}$

5. $-\frac{49}{9}$

6. Does not exist

7. $\frac{5}{3}$

8. ∞

9. $\frac{5}{2}$

10. 0