

Limits 4

Directions: Find each limit.

1. $\lim_{\theta \rightarrow 0} \frac{\sin^4(3\theta)}{2\theta^4}$

2. $\lim_{x \rightarrow 0} \frac{3-3\cos^2(x)}{5x}$

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

4. $\lim_{\theta \rightarrow 0} \frac{\theta^2-1+\cos(\theta)}{\sin^2 \theta}$

5. $\lim_{t \rightarrow 0} \frac{\tan^3(3t)}{t^3}$

6. $\lim_{x \rightarrow 0} \frac{1-3x^2-2\cos(x)+\cos^2(x)}{x^2}$

7. $\lim_{u \rightarrow 0} \frac{\sin^3(4u)}{32u^3}$

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

9. $\lim_{x \rightarrow -\infty} \frac{2x+7}{7x-1}$

10. $\lim_{x \rightarrow \infty} \frac{x^3-x+5}{x^4+x^2+2x}$

11. $\lim_{x \rightarrow -\infty} \frac{5x-7}{\sqrt{4x^2+5}}$

12. $\lim_{x \rightarrow \infty} 2e^{2x} + 3e$

13. $\lim_{x \rightarrow -\infty} (e^{10x} - 9e^{3x} + e^{2x} - 3e^{-2x} + 3e^{-11x})$

14. $\lim_{x \rightarrow \infty} (3e^{3x} + 2e^{2x} - 3e^{-3x} + 5e^{-7x})$

15. $\lim_{x \rightarrow -\infty} \ln(2x^4 - x + 5)$

16. $\lim_{x \rightarrow -\infty} \ln\left(\frac{7}{x^6 - 5x}\right)$