

Find each limits if it exists. Show work if possible.

1. $\lim_{n \rightarrow \infty} \left(\frac{1}{n^3} \right)$

8. $\lim_{n \rightarrow \infty} \left(\frac{1+5n}{2-3n} \right)$

2. $\lim_{n \rightarrow \infty} \left(\frac{2n-n^2}{3n+5} \right)$

9. $\lim_{n \rightarrow \infty} \left(\frac{3n^4-7n^2+2}{2n^4+1} \right)$

3. $\lim_{n \rightarrow \infty} \left(\frac{n^2+5}{n^3} \right)$

10. $\lim_{n \rightarrow \infty} \left(\frac{n^2}{n+1} \right)$

4. $\lim_{n \rightarrow \infty} \left(\frac{\sqrt{10n+1}}{\sqrt{2n-4}} \right)$

11. $\lim_{n \rightarrow \infty} \frac{\sqrt{n^2+4}}{n+4}$

5. $\lim_{n \rightarrow \infty} (-1)^{n+1} \left(\frac{1}{2n} \right)$

12. $\lim_{n \rightarrow \infty} \frac{n!}{(n+2)!}$

6. $\lim_{n \rightarrow \infty} (-1)^{n+1} \left(\frac{3}{n^2+1} \right)$

13. $\lim_{n \rightarrow \infty} \frac{3n+4}{\sqrt{2n^2-5}}$

7. $\lim_{n \rightarrow \infty} (-1)^n \left(\frac{3^n}{n^2} \right)$

14. $\lim_{n \rightarrow \infty} \left(\frac{2}{n^2} - 4n \right)$

Without Graphing Evaluate Given:

$$g(x) = \begin{cases} 3x-2 & , x \leq -1 \\ |x|-6 & , -1 < x \leq 1 \\ 2x^2+3 & , x > 1 \end{cases}$$

15. $\lim_{x \rightarrow 1^+} g(x)$

16. $\lim_{x \rightarrow 1^-} g(x)$

17. $\lim_{x \rightarrow 1} g(x)$

18. $\lim_{x \rightarrow 5} g(x)$

19. $\lim_{x \rightarrow -1^+} g(x)$

20. $\lim_{x \rightarrow -1^-} g(x)$

21. $\lim_{x \rightarrow -1} g(x)$

22. $\lim_{x \rightarrow 0} g(x)$