Evaluating Limits Worksheet

Twenty-four limits that progress from substitution to algebraic, one-sided, and infinite behavior.

Revision: 2026-07-23 **Canonical page:** https://bettergrades.net/subjects/math/calculus/worksheets/evaluating-limits/

Name: _____ **Date:** _____

1. Evaluate $\lim_{x\to 2}(3x^2 - 5x + 4)$.

2. Evaluate $\lim_{x\to -2}(x^3 + 4x)$.

3. Evaluate $\lim_{t\to 3} \frac{t^2+1}{t+2}$.

4. Evaluate $\lim_{h\to 0}(7 - 4h + h^2)$.

5. Evaluate $\lim_{u\to 1} \sqrt{u+8}$.

6. Evaluate $\lim_{x\to 4} \frac{x+5}{\sqrt{x}}$.

7. Evaluate $\lim_{x\to 3} \frac{x^2-9}{x-3}$.

8. Evaluate $\lim_{x\to -4} \frac{x^2-16}{x+4}$.

9. Evaluate $\lim_{x\to 2} \frac{x^3-8}{x-2}$.

10. Evaluate $\lim_{x\to 1} \frac{x^2+x-2}{x-1}$.

11. Evaluate $\lim_{y\to 5} \frac{y^2-7y+10}{y-5}$.

12. Evaluate $\lim_{z\to -1} \frac{z^3+1}{z+1}$.

13. Evaluate $\lim_{x\to 9} \frac{\sqrt{x}-3}{x-9}$.

14. Evaluate $\lim_{x\to 0} \frac{\sqrt{1+x}-1}{x}$.

15. Evaluate $\lim_{t\to 4} \frac{t-4}{\sqrt{t}-2}$.

16. Evaluate $\lim_{u\to 0} \frac{u}{\sqrt{9+u}-3}$.

17. For $f(x) = \begin{cases} x+2, & x<1 \\ 4-x, & x\geq 1 \end{cases}$, evaluate the limit as $x \to 1^-$.

18. For $f(x) = \begin{cases} 2x, & x < 0 \\ x^2 + 1, & x \geq 0 \end{cases}$, evaluate the limit as $x \to 0^+$.

19. For $g(x) = \frac{|x|}{x}$, evaluate the limit as $x \to 0^-$.

20. For $h(x) = \begin{cases} x^2, & x \leq 2 \\ 6 - x, & x > 2 \end{cases}$, evaluate the limit as $x \to 2$.

21. Evaluate $\lim_{x\to\infty} \frac{5x^2-1}{2x^2+3}$.

22. Evaluate $\lim_{x\to\infty} \frac{3x+7}{x^2+1}$.

23. Evaluate $\lim_{x\to-\infty} \frac{4x^3+x}{2x^3-5}$.

24. Evaluate $\lim_{x\to2^+} \frac{1}{x-2}$.