

Precalculus
Practice with Limits

Name _____

Find each limit, if it exists. If it does not then write DNE.

1. $\lim_{x \rightarrow 2} x^2$

2. $\lim_{x \rightarrow -3} (3x + 2)$

3. $\lim_{x \rightarrow 0} 5x + 4$

4. $\lim_{x \rightarrow 0} \frac{x^2 - 1}{x + 1}$

5. $\lim_{x \rightarrow -1^-} \frac{x^2 - 1}{x + 1}$

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

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

8. $\lim_{x \rightarrow 1} f(x)$, where $f(x) = \begin{cases} x, & x \leq 1 \\ 1 - x, & x > 1 \end{cases}$

9. $\lim_{x \rightarrow 3} f(x)$, where $f(x) = \begin{cases} \frac{x + 2}{2}, & x \leq 3 \\ \frac{12 - 2x}{3}, & x > 3 \end{cases}$

10. $\lim_{x \rightarrow 2} \frac{|x - 2|}{x - 2}$

11. $\lim_{x \rightarrow 5^+} \frac{x - 5}{x^2 - 25}$

12. $\lim_{x \rightarrow 1} \frac{x^2 + x - 2}{x^2 - 1}$

13. $\lim_{x \rightarrow 0} \frac{\sqrt{2+x} - \sqrt{2}}{x}$

14. $\lim_{x \rightarrow 0} \frac{\sqrt{3+x} - \sqrt{3}}{x}$

15. $\lim_{x \rightarrow 0} \frac{1}{x+4} - \frac{1}{4}$

16. $\lim_{x \rightarrow 4^-} \frac{\sqrt{x} - 2}{x - 4}$

17. $\lim_{x \rightarrow 2} \frac{x - 2}{x^2 - x - 2}$

18. $\lim_{x \rightarrow 1} \frac{x^4 + 3x^3 - 2x^2 - 2}{x - 1}$

19. $\lim_{x \rightarrow 2} \frac{x^5 - 32}{x - 2}$

20. $\lim_{x \rightarrow 0} \frac{x}{1 - \sqrt{1 - x}}$