

1. $\lim_{x \rightarrow 5} \frac{x^2 - 2x - 15}{2x^2 - 11x + 5} =$

2. $\lim_{x \rightarrow 3} \frac{\sqrt{x+1} - 2}{x-3} =$

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

4. $f(x) = 5 - x$, $g(x) = x^3$. Find $\lim_{x \rightarrow 1} g(f(x))$

5. Why is $f(x) = 2x^2 + 3x$ continuous at $x = 4$?

6. $f(x) = x^2 + x + 3$ is defined on $[2, 10]$. Discuss the IVT as it applies to the number 50.

7. $\lim_{x \rightarrow 0} \frac{\sin(2x)}{3x}$ Find and justify your result.

8. Discuss the continuity of $f(x) = \begin{cases} 2x - 4, & x \leq 3 \\ x^2 - 2x, & x > 3 \end{cases}$

9. Discuss the difference in outcomes of $\lim_{x \rightarrow 2^-} \frac{3}{x-2}$ & $\lim_{x \rightarrow 2^+} \frac{3}{x-2}$.