

Math 1510
Practice problems on limits

1. $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x^2 - x - 6}$

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

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

4. $\lim_{x \rightarrow 0^+} \left(\frac{1}{x} - \frac{1}{|x|} \right)$

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

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

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

8. $\lim_{x \rightarrow -\infty} \sqrt{x^2 + 1}$

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

10. $\lim_{x \rightarrow 0} e^{2 + \sin x}$

11. $\lim_{x \rightarrow -\infty} (\sqrt{x^2 - 2x} + x)$

12. $\lim_{x \rightarrow 0} \left(\frac{1}{x} - \frac{2}{x^2 + 2x} \right)$

13. $\lim_{x \rightarrow \infty} \frac{2x^2 + 1}{(x + 1)(x + 3)}$

14. $\lim_{x \rightarrow 9} \frac{x - 9}{\sqrt{x} - 3}$

15. $\lim_{x \rightarrow \infty} \frac{4x^3 - 5x}{1 - 2x - x^2}$

16. $\lim_{x \rightarrow 4^+} \frac{4 - x}{|4 - x|}$

17. $\lim_{x \rightarrow \infty} \frac{\sqrt{4x^6 - 3}}{x^3 + 5x}$

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

19. $\lim_{x \rightarrow -\infty} \frac{|x|^5 + x^5 + 3x^4 + 2}{x^5 - 6}$

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