Finding Limits Algebraically Review

1. $\lim_{x\to -5}\left(\frac{x^2-7x+12}{x^2+x-12}\right)=$

2. $\lim_{x\to 0}\left(\frac{(x+3)^2-9}{x}\right)=$

3. $\lim_{x\to 2}\left(\frac{x^2+2x}{x^2+x-2}\right)=$

4. $\lim_{x\to 0}\left(\frac{(x+1)^3-1-3x}{x^2}\right)=$

5. $\lim_{x\to 2}\left(\frac{x^2-4}{x^2-1}\right)=$

6. $\lim_{x\to 2}\left(\frac{x^2-4}{x+2}\right)=$

7. $\lim_{x\to -1}\left(\frac{x^2-2x-3}{x^2+x}\right)=$

8. $\lim_{x\to 0}\left(\frac{x^4}{x^2}\right)=$

9. $\lim_{x\to 3}\left(\frac{x^2}{x^2+x-12}\right)=$

10. $\lim_{x\to 1}\left(\frac{(x+5)^2-36}{x-1}\right)=$

11. $\lim_{x\to 12}\left(\frac{(x-11)^2-1}{x-12}\right)=$

12. $\lim_{x\to -3}\left(\frac{8x+24}{x^2+7x+12}\right)=$

13 $\lim_{x\to 3}\left(\frac{\frac{1}{x+5}+\frac{1}{8}}{x-3}\right)$

14 $\lim_{x\to -5}\left(\frac{\sqrt{x}-5}{x-25}\right)=$

15 $\lim_{x\to 2}\left(\frac{\sqrt{2x}-4}{x-2}\right)$

16 $\lim_{x\to 1}\left(\frac{x-1}{\sqrt{x}}\right)=$

17 $\lim_{x\to 4}\left(\frac{x^2-4x-12}{x^2-14x+48}\right)$

18 $\lim_{x\to 0}\left(\frac{\sqrt{x+1}-1}{x}\right)=$

19 $\lim_{x\to -1}\left(\frac{\frac{1}{x+1}+\frac{2}{x^2-1}}{2x+2}\right)$

20 $\lim_{x\to 9}\left(\frac{3x-27}{x-3\sqrt{x}}\right)=$

21 $\lim_{x\to 63}\left(\frac{x-63}{\sqrt{x+1}-8}\right)$

22 $\lim_{x\to 3}\left(\frac{\frac{3}{2-x}+3}{3-x}\right)=$

23 $\lim_{x\to 0}\left(\frac{x}{\sqrt{x}}\right)$

24 $\lim_{x\to 0}\left(\frac{x^4}{x^2}\right)=$

25 $\lim_{x\to -1}\left(\frac{\frac{2}{x}+\frac{2}{x^2}}{x+1}\right)$

26 $\lim_{x\to 3}\left(\frac{x^2}{x^2+x-12}\right)=$

Calc

Limits of Piecewise Functions

Find the following limits if possible:

1. $\lim_{x \to 0} \begin{cases} x^2, & x < 0 \\ 2, & x = 0 \\ 2x+1, & x > 0 \end{cases}$

2. $\lim_{x \to -1} \begin{cases} -3x, & x < -1 \\ 0, & x = -1 \\ 2x^2+1, & x > -1 \end{cases}$

3. $\lim_{x \to 2} \begin{cases} 2x-4, & -1 \le x \le 2 \\ x^3+2, & 2 < x \le 3 \end{cases}$

4. $\lim_{x \to 1} \begin{cases} x^3, & x < 1 \\ 2, & x = 1 \\ 3x-2, & x > 1 \end{cases}$

5. $\lim_{x \to -2} \begin{cases} x+5, & x < -2 \\ x^2+2x+3, & x \ge -2 \end{cases}$

6. $\lim_{x \to 0} \begin{cases} x^2-1, & x \le 0 \\ 2x-1, & x > 0 \end{cases}$

7. $\lim_{x \to 2} \begin{cases} 2-x, & x < 2 \\ 1, & x = 2 \\ x^2-4, & x > 2 \end{cases}$

8. $\lim_{x \to 1} \begin{cases} 2-x, & x < 1 \\ x+1, & x \ge 1 \end{cases}$

9. $\lim_{x \to 0} \begin{cases} |x-3|, & x < 0 \\ x^2-2x, & x \ge 0 \end{cases}$

10. $\lim_{x \to -3} \begin{cases} 1-x^2, & x \ge -3 \\ 8-x, & x < -3 \end{cases}$