$\lim_{x \to 3} \frac{x^2 - 9}{x^2 - 5x + 6} = \left\{ \frac{0}{0} \right\} = \left| \frac{(x - 3)(x + 3)}{(x - 3)(x - 2)} \right| = \left| \frac{x + 3}{x - 2} \right| = \frac{6}{1} = 6.$