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$$\lim_{x \rightarrow 3} \frac{x^2 - 9}{x^2 + 2x - 3} = \frac{3^2 - 9}{3^2 + 2(3) - 3} = \frac{0}{12} = \boxed{0}$$

$$8. \lim_{t \rightarrow 2} \frac{t^2 - 4}{t^3 - 8} = \lim_{t \rightarrow 2} \frac{(t-2)(t+2)}{(t-2)(t^2 + 2t + 4)} = \lim_{t \rightarrow 2} \frac{t+2}{t^2 + 2t + 4} = \frac{2+2}{2^2 + 2^2 + 4} = \frac{4}{12} = \boxed{\frac{1}{3}}$$

$$12. \lim_{x \rightarrow 3} \frac{\sqrt{x+6} - x}{x^2 - 3x^2} = \lim_{x \rightarrow 3} \frac{(\sqrt{x+6} - x)(\sqrt{x+6} + x)}{x^2(x-3)(\sqrt{x+6} + x)}$$

$$= \lim_{x \rightarrow 3} \frac{x+6 - x^2}{x^2(x-3)(\sqrt{x+6} + x)} = \lim_{x \rightarrow 3} \frac{-(x^2 - x - 6)}{x^2(x-3)(\sqrt{x+6} + x)}$$

$$= \lim_{x \rightarrow 3} \frac{-(x-3)(x+2)}{x^2(x-3)(\sqrt{x+6} + x)} = \frac{-(3+2)}{3^2(\sqrt{3+6} + 3)} = \frac{-5}{9(6)} = \boxed{\frac{-5}{54}}$$

$$16. \lim_{x \rightarrow -\infty} \frac{1 - 2x^2 - x^4}{5 + x - 3x^4} = \lim_{x \rightarrow -\infty} \frac{\frac{1}{x^4} - \frac{2}{x^2} - 1}{\frac{5}{x^4} + \frac{1}{x^3} - 3} = \frac{0 + 0 - 1}{0 + 0 - 3} = \boxed{\frac{1}{3}}$$

$$20. \lim_{x \rightarrow 1} \left(\frac{1}{x-1} + \frac{1}{x^2 - 3x + 2} \right) = \lim_{x \rightarrow 1} \left(\frac{1}{x-1} + \frac{1}{(x-2)(x-1)} \right)$$

$$= \lim_{x \rightarrow 1} \frac{x-2+1}{(x-1)(x-2)} = \lim_{x \rightarrow 1} \frac{1}{x-2} = \frac{1}{1-2} = \boxed{-1}$$