

$$\lim_{x \rightarrow 1} \left[\frac{x^4 + 3x^3 - 13x^2 + 27x + 36}{x^2 + 3x - 4} \right] \Rightarrow$$

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use long division

$$\begin{array}{r} x^2 - 9 \\ x^2 + 3x - 4 \overline{) x^4 + 3x^3 - 13x^2 - 27x + 36} \\ \underline{-(x^2 + 3x - 4)} \\ 0 + 0 - 9x^2 - 27x + 36 \\ \underline{-(9x^2 + 27x - 36)} \\ 0 \end{array}$$

$$= \lim_{x \rightarrow 1} \left[\frac{x^4 + 3x^3 - 13x^2 - 27x + 36}{x^2 + 3x - 4} \right]$$

$$= \lim_{x \rightarrow 1} \left[x^2 - 9 + \frac{0}{x^2 + 3x - 4} \right] \Rightarrow$$

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The answers that were calculated

$$= \lim_{x \rightarrow 1} [x^2 - 9] \Rightarrow$$

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Direct substitution

$$= (1)^2 - 9$$

$$= 1 - 9$$

$$= -8$$