

# Taller

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$$\begin{aligned} a) \lim_{x \rightarrow 2} (x^2 - 4) &= (x - 2)(x + 2) \\ &= (2 - 2)(2 + 2) \\ &= (0)(4) \\ &= 0 \end{aligned}$$

$$\begin{aligned} b) \lim_{x \rightarrow 0} \frac{x - 2}{x^2 - 3x + 2} \\ &= \frac{\cancel{x} - 2}{(\cancel{x} - 2)(x - 1)} \\ &= \frac{1}{x - 1} \\ &= \frac{1}{0 - 1} \\ &= -1 \end{aligned}$$

$$\begin{aligned} c) \lim_{x \rightarrow 1} \frac{x^2 + 2x + 3}{(x - 1)^2} &= \frac{x^2 + 2x + 3}{x^2 - 2x + 1} \\ &= \frac{(1)^2 - 2(1) + 3}{(1)^2 - 2(1) + 1} \\ &= \frac{1 - 2 + 3}{1 - 2 + 1} \\ &= \frac{2}{0} \\ &= \infty \end{aligned}$$

$$\begin{aligned} d) \lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} &= \frac{(x - 2)(x + 2)}{\cancel{x - 2}} \\ &= \frac{x + 2}{1} \\ &= 2 + 2 \\ &= 4 // \end{aligned}$$

$$\begin{aligned} e) \lim_{x \rightarrow 3} \frac{x - 3}{x^2 - 5x + 6} &= \frac{\cancel{x} - 3}{(\cancel{x} - 3)(x - 2)} \\ &= \frac{1}{3 - 2} \\ &= \frac{1}{1} \\ &= 1 // \end{aligned}$$

$$\begin{aligned} f) \lim_{x \rightarrow 2} \frac{3x + 6}{x^2 + 8} &= \frac{3(\cancel{x} + 2)}{(\cancel{x} - 2)(x^2 + 2x + 4)} \\ &= \frac{3}{x^2 - 2x + 4} \\ &= \frac{3}{(2)^2 - 2(2) + 4} \\ &= \frac{3}{4 - 4 + 4} \\ &= \frac{3}{4} // \end{aligned}$$



$$\begin{aligned} \text{i)} \lim_{x \rightarrow 2} \frac{x^2 + 5}{x^2 - 3} &= \frac{(2)^2 + 5}{(2)^2 - 3} \\ &= \frac{4 + 5}{4 - 3} \\ &= 9 // \end{aligned}$$

$$\begin{aligned} \text{i)} \lim_{x \rightarrow 1} \frac{x^2 - 4}{x^2 + 3x + 2} &= \frac{(x-2)(x+2)}{(x-2)(x+1)} \\ &= \frac{x+2}{x+1} \\ &= \frac{1+2}{1+1} \\ &= \frac{3}{2} \\ &= \text{Indefinido} \end{aligned}$$

$$\begin{aligned} \text{3)} \lim_{x \rightarrow 2} \frac{x+1}{x-1} &= \frac{2+1}{2-1} \\ &= \frac{3}{1} \\ &= 3 \end{aligned}$$

$$\begin{aligned} \text{4)} \lim_{x \rightarrow 0} \left( \frac{3x + 4x^{-1}}{x^2 + 4x^{-1}} \right) &= \frac{3x^2 + 4}{x^2 + 4} \\ &= \frac{3(0) + 4}{(0)^2 + 4} \\ &= \frac{4}{4} \\ &= 1 \end{aligned}$$