

1

$$\lim_{x \rightarrow 1} \frac{x^2 - 7x + 12}{x^2 - 11x + 12} = \frac{(x-1)(x-12)}{(x-1)(x-12)} = \frac{1}{1}$$

محدود

2

$$\lim_{n \rightarrow \infty} \frac{|x_n| - |x_{n+1}|}{x_n} \rightarrow \begin{cases} \frac{-x_n + 1 - x_{n+1}}{x_n} = \frac{-4x_n}{x_n} = -4 \\ \frac{-x_n + 1 - x_{n+1}}{x_n} = \frac{-4x_n}{x_n} = -4 \end{cases}$$

محدود

3

$$\lim_{x \rightarrow 2} \frac{x-2}{\sqrt{x}-2} \times \frac{\sqrt{x}+2}{\sqrt{x}+2} = \frac{x-2}{x-2} \times \sqrt{x}+2 = 2$$

محدود

4

$$\lim_{x \rightarrow 2} \frac{x - \sqrt{2x}}{x^2 - x - 4} \times \frac{x + \sqrt{2x}}{x + \sqrt{2x}} = \frac{x^2 - 2x}{(x+3)(x-2)} \times \frac{1}{x + \sqrt{2x}} = \frac{x(x-2)}{(x+3)(x-2)} \times \frac{1}{x + \sqrt{2x}}$$

$$x^2 - x - 4 = (x+3)(x-2) \Rightarrow \frac{2}{\sqrt{x}+2} = \frac{2}{2+2} = \frac{1}{2}$$

محدود

5

$$\lim_{x \rightarrow 1} \frac{1 - \sqrt{x}}{1 - \sqrt{2x}} \times \frac{1 + \sqrt{x}}{1 + \sqrt{x}} \times \frac{1 + \sqrt{2-x}}{1 + \sqrt{2-x}} = \frac{1-x}{1-x} \times \frac{1}{1} = 1$$

$\lim_{x \rightarrow 1} 1 = 1$

محدود

