

نام و نام خانوادگی ..... زینب دانیال ..... پاسنامه تشریحی تکلیف شماره ..... کلاس ..... یا زدهم ..... اختیار ب

$$\lim_{x \rightarrow 1} \frac{x^2 - 7x + 3}{5x^2 - 8x + 3} \xrightarrow{\text{رفع ابهام}} \frac{x^2 - 7x + 14}{x^2 - 8x + 10} = \frac{(x-3)(x-1)}{(5x-2)(x-1)} = \frac{x-3}{5x-2} = \frac{1-3}{5-2} = \frac{1}{4}$$

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$$\lim_{x \rightarrow 0} \frac{|3x-1| - |3x+1|}{x} \xrightarrow{\text{رفع ابهام}} \frac{1-3x-3x-1}{x} = \frac{-6x}{x} = -6$$

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$$\lim_{x \rightarrow 4} \frac{x \cdot f}{\sqrt{x}-2} = \frac{(\sqrt{x}+2)(\sqrt{x}-2)}{\sqrt{x}-2} = \sqrt{x}+2 = 4$$

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$$\lim_{x \rightarrow 2} \frac{x - \sqrt{2x}}{2x^2 - 2x - 4} \xrightarrow{\text{رفع ابهام}} \frac{x - \sqrt{2x}}{(x-2)(2x+3)} \times \frac{x + \sqrt{2x}}{x + \sqrt{2x}} = \frac{x(x-2)}{(x-2)(2x+3)(x+\sqrt{2x})} = \frac{x}{(2x+3)(x+\sqrt{2x})} = \frac{2}{14}$$

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$$\lim_{x \rightarrow 1} \frac{1 - \sqrt{x}}{2 - \sqrt{5-x}} \xrightarrow{\text{رفع ابهام}} \frac{1 - \sqrt{x}}{2 - \sqrt{5-x}} \times \frac{1 + \sqrt{x}}{1 + \sqrt{x}} \times \frac{2 + \sqrt{5-x}}{2 + \sqrt{5-x}} = \frac{(1-x)(2+\sqrt{5-x})}{(2-x)(1+\sqrt{x})(2+\sqrt{5-x})} = \frac{1-x}{(2-x)(1+\sqrt{x})} = \frac{1-1}{2-1} = -1$$

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$$\lim_{x \rightarrow 1} \frac{\sqrt[p]{u+f} - f}{\sqrt[p]{u+v} - v} \times \frac{v}{v} \times \frac{f}{f} = \frac{v(u-f)(\sqrt[p]{u+v} + \sqrt[p]{u+v} + \dots + \sqrt[p]{u+v} + f)}{v(u-f)(\sqrt[p]{u+f} + f)}$$

رفع المقام

$\frac{v}{f}$

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$$\lim_{x \rightarrow 1} \frac{\sqrt[p]{2x} + \sqrt{x} - 2}{\sqrt{x} - 1} \rightarrow \lim_{x \rightarrow 1} \frac{\sqrt[p]{2x} + \sqrt{x} - 2}{\sqrt[p]{2x} - 1} \times \frac{\sqrt[p]{2x} + 1}{\sqrt[p]{2x} + 1} \times \frac{\sqrt{x} + 1}{\sqrt{x} + 1}$$

$$= \frac{2x + \sqrt{x} - 2}{x-1} \times \frac{\sqrt{x} + 1}{\sqrt[p]{2x} + 1} \Rightarrow \frac{2(\sqrt{x}-1)(\sqrt{x} + \frac{2}{\sqrt{x}})}{2(\sqrt{x}-1)(\sqrt{x}+1)} \rightarrow \frac{2}{1}$$

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$$\lim_{x \rightarrow \pi} \frac{1 + \cos^p x}{\sin^p x} \rightarrow \frac{(1 + \cos^p)(1 + \cos^p - \cos)}{(1 + \cos^p)(1 - \cos)}$$

رفع المقام

$\frac{2}{1}$

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$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{1 - \tan^p x}{\sin^p x - \cos^p x} = \frac{\cos - \sin}{\cos} = \frac{1}{\cos} = -\frac{1}{\sqrt{2}} = -\frac{1}{\sqrt{2}}$$

رفع المقام

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$$\lim_{x \rightarrow \frac{\pi}{4}} \frac{\tan^p x - 1}{\cos^p x} \rightarrow \frac{(\tan + 1)(\tan - 1)}{(\cos - \sin)(\sin + \cos)} = \frac{-(\sin + \cos)(\cos - \sin)}{\cos(\cos - \sin)(\sin + \cos)}$$

$$= -\frac{1}{\cos^p} = -\frac{1}{\frac{1}{\sqrt{2}}} = -\sqrt{2}$$

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