

۱۹، ۷۵

نام و نام خانوادگی شماره ثبت کلاس از دفتر
 پاسخنامه تشریحی تکلیف شماره ۳

$$\lim_{x \rightarrow 1} \frac{x^2 - 7x + 3}{x^2 - 1} = \frac{0}{0} \xrightarrow{\text{رنج‌یابی}} \lim_{x \rightarrow 1} \frac{(x-1)(4x-3)}{(x-1)(x+1)} = \frac{1}{2}$$

$$\lim_{x \rightarrow 0} \frac{|3x-1| - |x+1|}{x} = \frac{0}{0} \xrightarrow{\text{رنج‌یابی}} \lim_{x \rightarrow 0} \frac{(1-3x) - (1+x)}{x} = -2$$

$$\lim_{x \rightarrow 4} \frac{x-4}{\sqrt{x}-2} = \frac{0}{0} \xrightarrow{\text{رنج‌یابی}} \lim_{x \rightarrow 4} \frac{(\sqrt{x}-2)(\sqrt{x}+2)}{\sqrt{x}-2} = 4$$

$$\lim_{x \rightarrow 2} \frac{x - \sqrt{2x}}{2x^2 - x - 6} = \frac{0}{0} \xrightarrow{\text{رنج‌یابی}} \lim_{x \rightarrow 2} \frac{x - \sqrt{2x}}{(x-2)(2x+3)}$$

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

$$\lim_{x \rightarrow 1} \frac{1 - \sqrt{x}}{2 - \sqrt{x-1}} = \frac{0}{0} \xrightarrow{\text{رنج‌یابی}} \lim_{x \rightarrow 1} \frac{1 - \sqrt{x}}{2 - \sqrt{x-1}} = -2$$

$$\lim_{x \rightarrow 1} \frac{\sqrt{x+1} - 1}{\sqrt{x+1} - 1} = \frac{0}{0} \text{ (لحلها)} \rightarrow \lim_{x \rightarrow 1} \frac{\sqrt{x+1} - 1}{\sqrt{x+1} - 1} \cdot \frac{\sqrt{x+1} + 1}{\sqrt{x+1} + 1} = \frac{1}{1} = 1$$

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

$$\lim_{x \rightarrow 1} \frac{\sqrt{x+1} - 1}{\sqrt{x} - 1} = \frac{0}{0} \text{ (لحلها)} \rightarrow \lim_{x \rightarrow 1} \frac{\sqrt{x+1} - 1}{\sqrt{x} - 1} \cdot \frac{\sqrt{x} + 1}{\sqrt{x} + 1} = \frac{1}{1} = 1$$

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

$$\lim_{x \rightarrow \pi} \frac{1 + \cos x}{\sin x} = \frac{0}{0} \text{ (لحلها)} \rightarrow \lim_{x \rightarrow \pi} \frac{1 + \cos x}{\sin x} \cdot \frac{1 + \cos x}{1 + \cos x} = \frac{1 - \cos^2 x}{1 - \cos^2 x} = 1$$

$$\lim_{x \rightarrow \pi} \frac{1 + \cos x}{1 - \cos x} = \frac{1}{1} = 1$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{1 - \tan x}{\sin x - \cos x} = \frac{0}{0} \text{ (لحلها)} \rightarrow \lim_{x \rightarrow \frac{\pi}{2}} \frac{\cos x - \sin x - 1}{\cos x} = \frac{1}{1} = 1$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{1}{\cos x} = 1$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\tan x - 1}{\cos x} = \frac{0}{0} \text{ (لحلها)} \rightarrow \lim_{x \rightarrow \frac{\pi}{2}} \frac{\sin x - \cos x - 1}{\cos x} = \frac{1}{1} = 1$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{1}{\cos x} = 1$$