

1. $\lim_{x \rightarrow 1} \frac{x^2 - 5x + 3}{x^2 - 1x + 3} = \frac{0}{0} = \frac{(x-1)(x-3)}{(x-1)(5x-3)} = \frac{x-3}{5x-3} = \frac{1-3}{5-3} = \frac{-2}{2} = -1$ سوال 1: (5)

① $\frac{f'(x) = 2x - 5}{f(x) = -x + 3}$ \rightarrow $\frac{2x-5}{-x+3}$

2. $\lim_{x \rightarrow 0} \frac{|3x-1| - |3x+1|}{x} = \frac{-3x+1-3x-1}{x} = \frac{-6x}{x} = -6$ سوال 2: (5)

3. $\lim_{x \rightarrow 4} \frac{x-4}{\sqrt{x}-2} = \frac{(x-4)(\sqrt{x}+2)}{(\sqrt{x}-2)(\sqrt{x}+2)} = \frac{(x-4)(\sqrt{x}+2)}{x-4} = \sqrt{x}+2 = 2+2 = 4$ سوال 3: (5)

4. $\lim_{x \rightarrow 2} \frac{x-\sqrt{x}}{2x^2-x-4} = \frac{x-\sqrt{x}}{(x-2)(2x+3)}$ $\times \frac{x+\sqrt{x}}{x+\sqrt{x}} = \frac{x^2-x}{(x-2)(2x+3)(x+\sqrt{x})} = \frac{x(x-1)}{(x-2)(2x+3)(x+\sqrt{x})}$ سوال 4: (5)

5. $\lim_{x \rightarrow 1} \frac{1-\sqrt{x}}{x-\sqrt{x}} = \frac{1-\sqrt{x}}{\sqrt{x}(\sqrt{x}-1)} = \frac{1-\sqrt{x}}{\sqrt{x}(\sqrt{x}-1)} \times \frac{1+\sqrt{x}}{1+\sqrt{x}} = \frac{1-x}{\sqrt{x}(1-x)}$ سوال 5: (5)

6. $\lim_{x \rightarrow 4} \frac{\sqrt{3x+2}-5}{\sqrt{5x+1}-3} = \frac{3x+2-25}{5x+1-9} = \frac{3x-23}{5x-8}$ سوال 6: (5)

7. $\lim_{x \rightarrow 1} \frac{\sqrt{3x+2}-5}{\sqrt{x}-1} = \frac{3x+2-25}{x-1} = \frac{3x-23}{x-1} = \frac{(x-1)(3x-14)}{x-1} = 3x-14 = 3-14 = -11$ سوال 7: (5)

8. $\lim_{x \rightarrow \pi} \frac{1+\cos x}{\sin x} = \frac{1+\cos x}{\sin x} \times \frac{1+\cos x}{1+\cos x} = \frac{(1+\cos x)(1+\cos x)}{\sin x(1+\cos x)} = \frac{1+\cos x}{\sin x}$ سوال 8: (5)

Arman $\frac{1+(-1) - (-1)}{1-(-1)} = \frac{1}{2}$

$$\lim_{x \rightarrow \frac{\pi}{4}} \frac{1 - \tan x}{\sin x - \cos x} = \frac{1 - \frac{\sin x}{\cos x}}{\sin x - \cos x} = \frac{\cos x - \sin x}{\sin x - \cos x} \quad \text{: 9 سوال}$$

$$= \frac{1}{\cos x} \quad \leftarrow$$

$$-\sqrt{r} = -\frac{r}{\sqrt{r}} \quad \leftarrow$$

$$\lim_{x \rightarrow \frac{\pi}{4}} \frac{\tan x - 1}{\cos x} = \frac{\frac{\sin x}{\cos x} - 1}{\cos x - \sin x} = \frac{\sin x - \cos x}{\cos x} \quad \text{: 10 سوال}$$

$$= \frac{1}{\cos x} \quad \leftarrow$$

$$-\frac{1}{\left(-\frac{\sqrt{r}}{r}\right)^2} = \frac{r}{\sqrt{r}} = \sqrt{r} \quad \leftarrow$$