۱

$$\frac{(x-1)(4x-3)}{(x-1)(5x-3)} = \frac{4x-3}{5x-3} \xrightarrow{x\to 1} = \frac{1}{2}$$

۲

$$x \longrightarrow 0^+ \text{ و } 0^- \longrightarrow \frac{1-3x-3x-1}{x} = \frac{-6x}{x} = -6$$

۳

$$\frac{(\sqrt{x}-2)(\sqrt{x}+2)}{\sqrt{x}-2} = \sqrt{x}+2 = 4$$

۴

$$\frac{\sqrt{x}(\sqrt{x}-\sqrt{2})}{(x-2)(2x+3)} = \frac{\sqrt{x}(\sqrt{x}-\sqrt{2})}{(\sqrt{x}-\sqrt{2})(\sqrt{x}+\sqrt{2})(2x+3)} = \frac{\sqrt{x}}{(\sqrt{x}+\sqrt{2})(2x+3)} = \frac{\sqrt{2}}{14\sqrt{2}} = \frac{1}{14}$$

۵

$$\frac{1-\sqrt{x}}{2-\sqrt{5-x}} \times \frac{2+\sqrt{5-x}}{2+\sqrt{5-x}} \times \frac{22}{22} = \frac{1-x}{4-5+x} \times \frac{4}{2} = \frac{1-x}{x-1} \times 2 = -2$$

$$\frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3}\times\frac{\text{مزدوج}}{\text{مزدوج}}\times\frac{\text{مزدوج}}{\text{مزدوج}}=\frac{3x+4-16}{5x+7-27}\times\frac{27}{8}=\frac{3x-12}{5x-20}\times\frac{27}{8}$$

$$\frac{3(x-4)}{5(x-4)}\times\frac{27}{8}=\frac{81}{40}$$

٦

$$\frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1}\times\frac{\text{مزدوج}}{\text{مزدوج}}\times\frac{\text{مزدوج}}{\text{مزدوج}}=\frac{3x+\sqrt{x}-4}{x-1}\times\frac{3}{4}$$

$$\frac{(3\sqrt{x}+4)(\sqrt{x}-1)}{(\sqrt{x}-1)(\sqrt{x}+1)}=\frac{3\sqrt{x}+4}{\sqrt{x}+1}\times\frac{3}{4}=\frac{21}{8}$$

٧

$$\frac{1+\cos^3 x}{1-\cos^2 x}=\frac{(1+\cos x)(1+\cos^2 x-\cos x)}{(1+\cos x)(1-\cos x)}=\frac{3}{2}$$

٨

$$\frac{1-\frac{\sin x}{\cos x}}{\sin x-\cos x}=\frac{\frac{\cos x-\sin x}{\cos x}}{\sin x-\cos x}=\frac{-1}{\cos x}=\frac{-1}{\frac{\sqrt{2}}{2}}=\frac{-2}{\sqrt{2}}$$

$$=-\sqrt{2}$$

٩

$$\frac{\frac{\sin^2 x-\cos^2 x}{\cos^2 x}}{\cos^2 x-\sin^2 x}=\frac{-1}{\cos^2 x}=\frac{-1}{\frac{1}{2}}=-2$$

١٠