«امیرعلی وحیدی» «گروه A»

۱- $\frac{(x-1)(x-4)(4x-3)}{(x-1)(x-4)(3x-3)} = \frac{1}{2}$ ← حذف عامل $(x-1)$

۲- $\frac{x-3x^2-3x-1}{x} = \frac{-6x}{x} = -6$

۳- $\frac{x-4}{\sqrt{x}-2} \times \frac{1}{1} = \frac{4(x-4)}{x-4} = 4$

۴- $\frac{x-\sqrt{4x}}{(x-1)(2x+3)} \times \frac{1}{1} \Rightarrow \frac{x^2-2x}{2x(x-1)(2x+3)} \Rightarrow \frac{x(x-2)}{2x(x-1)(2x+3)} = \frac{1}{14}$

۵- $\frac{1-\sqrt{x}}{2-\sqrt{3-x}} \times \frac{1}{1} \times \frac{1}{1} \Rightarrow \frac{1-x^{-1}}{x-1} \times \frac{4}{2} = -2$

۶- $\frac{\sqrt{3x+4}-4}{\sqrt[3]{3x+7}-3} \times \frac{1}{1} \times \frac{\text{ف}}{\text{ف}} \Rightarrow \frac{3x+4-16}{3x+7-27} \times \frac{9}{8} = \frac{3(x-4)}{3(x-8)} \times \frac{9}{8} = \frac{27}{40}$

۷- $\frac{\sqrt{2x+\sqrt{x}}-2}{\sqrt[3]{x}-1} \times \frac{1}{1} \times \frac{\text{ف}}{\text{ف}} \Rightarrow \frac{2x+\sqrt{x}-4}{x-1} \times \frac{3}{4} = \frac{9x+3\sqrt{x}-12}{4x-4} \xrightarrow{\text{hop}} \frac{9+\frac{3}{2\sqrt{x}}}{4} = \frac{9+\frac{3}{2}}{4} \Leftarrow \frac{\frac{21}{2}}{4} \Leftarrow \frac{21}{8}$

۸- $\frac{(1+\cos\alpha)(1+\cos^2\alpha-\cos\alpha)}{(1-\cos^2\alpha)} = \frac{1+\cos^2\alpha-\cos\alpha}{1-\cos\alpha} \xrightarrow{\text{جایگذاری}} \frac{3}{2}$

$(1-\cos^2\alpha) = (1+\cos\alpha)(1-\cos\alpha)$

۹- $\frac{\frac{\cos x-\sin x}{\cos x}}{\frac{\sin x+\cos x}{\cos x}} = \frac{\cos x-\sin x}{\sin x+\cos x} \xrightarrow{\text{جایگذاری}} \frac{-1}{\frac{\sqrt{2}}{2}} = \frac{-2}{\sqrt{2}}$

۱۰- $\frac{(\tan x-1)(\tan x+1)}{\cos^2 x-\sin^2 x} \Rightarrow \frac{\frac{\sin x-\cos x}{\cos x} \times \frac{\sin x+\cos x}{\cos x}}{(\cos x-\sin x)(\cos x+\sin x)} = \frac{\frac{1}{\cos^2 x}}{\frac{-1}{1}} = \frac{1}{-\cos^2 x} = \frac{1}{-\frac{1}{2}} = -2$

$(\cos x-\sin x)(\cos x+\sin x) = -1$