نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

۱

$\cot \frac{2\pi}{24} = \sqrt{3}$

$\sqrt{(\sqrt{3})^2+1} = 2$ ✓

۲

ب

$\frac{\sqrt{2}}{1-\sqrt{2}} = \frac{2+\sqrt{2}}{-1} = -2-\sqrt{2} \simeq -3/4$

$[-3/4] = -4$ ✓

الف

$2\cos^2 \frac{\pi}{8} = 2(\frac{1}{4}) = \frac{1}{2}$

$f(\frac{1}{2}) = \sqrt{\frac{2(2)-1}{2^2}} = \frac{\sqrt{3}}{2}$ ✓

۳

$\sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$ $\quad \frac{\sqrt{2}}{2}\sqrt{1-\frac{1}{2}} = \frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{2}} = \frac{1}{2}$ ✓

۴

$Fog(x) = \{(4,5),(2,5),(4,12),(8,12)\}$

$gof(x) = \emptyset$

$fof(x) = \emptyset$

$gog(x) = \{(4,8),(2,4),(4,10)\}$

۵

$(4,2)$
$a \to 2$
$3 \to 2$
$\Rightarrow a = 4$

$(4,1)$
$4 \to 5$
$b \to 1$
$\Rightarrow b = 5$

$(4,5)$ ✓

۶

$f(f(x)) = 4x + 3$

$f(x) = 2x + b$ (جزء)

$f(f(x)) = 2(2x+b)+b = 4x+3$

$3b = 1$

$b = 1$

$f(x) = 2x + 1$

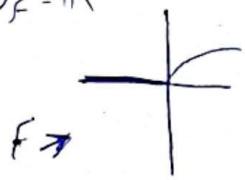
$f(-1) = 2(-1)+1 = -1$

$g(-1) = g(2x+3) \Rightarrow x = -2$

$g(2(-2)+3) = -4-3 = -7$ ✓

۷

$D_f = \mathbb{R}$



$D_g = \mathbb{R} - \{0, 4\}$

$f(x) \neq 0, 4$

$\sqrt{x+|x|} \neq 0, 4$

$x \neq 0, 8$

$\Rightarrow D_{gof} = \mathbb{R} - \{0, 8\}$

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$D_f = [-1, 1]$

$R_f = [0, 1]$

$D_g = [0, +\infty)$

$R_g = [0, -\infty)$

$D_f \cap D_g \cap R_f = [0, 1]$

۹

ب)

$(\underbrace{x + \frac{1}{x}}_{t})^2 = \underbrace{x^2 + \frac{1}{x^2}}_{t^2-2} + 2\underbrace{(x + \frac{1}{x})}_{t} \Rightarrow x^2 + \frac{1}{x^2} = t^2 - 2t$

$F(x) = x^2 - 2x$

الف)

$F(x) = \frac{-2(4x+0)-1}{4x+0-2} = \frac{-8x-11}{4x+2}$

۱۰

$x_1\sqrt{x_1} = 1$

$x_1^3 = 1$

$x_1 = 1$

$x_2\sqrt{x_2} = 2\sqrt{2}$

$x_2 = 2$

$|x_2 - x_1| = |2-1| = 1$ ✓