# King Fahd University of Petroleum and Minerals

## Prep-Year Math Program

## Math 001 - Term 131

## Recitation (2.8)

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**Question 1:** If $f(x)=\frac{3x+2}{1-x}$ and $g(x)=\sqrt{x+2}$, find

**(a):** $(f-g)(-1)$ **(b):** $(g\circ f)\left(\frac{1}{2}\right)$ **(c):** Domain of: $\frac{g}{f}$

**Ans: (a):** $(f-g)(-1)=-\frac{3}{2}$ **(b):** $(g\circ f)\left(\frac{1}{2}\right)=3$ **(c):** $D_{\frac{g}{f}}=\left[-2,-\frac{2}{3}\right)\cup\left(-\frac{2}{3},1\right)\cup(1,\infty)$

**Question 2:** If $(f\circ g)(x)=8x^2+12x-1$ and $f(x)=4x-5$, then find $g(-2)$.

**Answer:** $g(-2)=3$

**Question 3:** If $f(x)=\begin{cases}2x-3 & \text{if} \quad x\le -2\\ 2x+3 & \text{if} \quad x>-2\end{cases}$ and $g(x)=[\![x]\!]$, find $(f\circ g)(0.85)$

**Answer:** $(f\circ g)(0.85)=3$

**Question 4:** If $f(x)=\sqrt{2-x}$ and $g(x)=\sqrt{x+3}$, then the domain of $\left(\frac{f}{g}\right)(x)$ is

a) $[-2,3)$
b) $(-3,\infty)$
c) $(-3,2]$
d) $(-\infty,-3]\cup[2,\infty)$
e) $(-\infty,-2]\cup[3,\infty)$

**Answer: (c):** $D_{\frac{f}{g}}=(-3,2]$

**Question 5:** If $f(x)=\sqrt{x-3}$ and $g(x)=\frac{2}{x}$, then the domain of $(f\circ g)(x)$ is

a) $(-\infty,0)\cup(0,\infty)$
b) $(-3,\infty)$
c) $\left(0,\frac{2}{3}\right]$
d) $\left[-\infty,0\right)\cup\left[\frac{2}{3},\infty\right)$
e) $\left[0,\frac{2}{3}\right]$

**Answer: (c)** $\left(0,\frac{2}{3}\right]$