King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math (001)-Term (181)
Recitation (2. 1)

Question 1: Find the domain of the following function:

(a): $f(x)=\sqrt{|x-5|}$ $\quad Domain=(-\infty,\infty)$

(b): $f(x)=\dfrac{x^4}{x^2+x-6}$ $\quad Domain=(-\infty,-3)\cup(-3,2)\cup(2,\infty)$

(c): $f(x)=\sqrt{x^2-2x-8}$ $\quad Domain=(-\infty,-2]\cup[4,\infty)$

(d): $f(x)=\dfrac{x^2}{\sqrt{6-x}}$ $\quad Domain=(-\infty,6)$

Question 2: The domain of the following function $y=\dfrac{\sqrt{x+1}}{x}$ is

(a) $(-1,0)\cup(0,\infty)$ (b) $[-1,,\infty)$ (c) $[-1,0)\cup(0,\infty)$ (d) $[1,\infty)$ (e) $[0,\infty)$

Answer: (c): $Domain=[-1,0)\cup(0,\infty)$

Question 3: Find the range of the following functions:

(a): $f(x)=x^2+1$

(b): $f(x)=-\sqrt{x+2}$

(c): $f(x)=1$

(d): $f(x)=-|x-3|-3$

(e): $f(x)=-x-5$

Answer: (a): $Range=[1,\infty)$, **(b):** $Range=(-\infty,0]$, **(c):** $Range=\{1\}$

(d): $Range=(-\infty,-3]$, **(e):** $Range=(-\infty,\infty)$

Question 4: If $f(x)=\dfrac{2x}{x-1}$, then find the difference quotient $\dfrac{f(a+h)-f(a)}{h}$, where $h\neq 0$

Answer: $\dfrac{-2}{(a+h-1)(a-1)}$