MATH 101
Sections 8.1-8.3
Supplemental Worksheet

Find the domain of the following rational functions. Express answers in interval notation.

(1) $f(x)=\dfrac{3}{x-4}$

(2) $g(x)=\dfrac{3}{x^2+5x+6}$

(3) $y=\dfrac{4x}{x^2-x-12}$

(4) $y=\dfrac{x+5}{x^2+4x}$

(5) $g(x)=\dfrac{x}{6x^2+13x-5}$

Find the domain and range of the following functions. Express answers in interval notation.

(6) $y=-\sqrt{5x+1}$

(7) $f(x)=\sqrt{3x-4}$

(8) $y=x^2-4x+4$

(9) $f(x)=2x+5$

Find each of the following:

(10) If $f(x)=\begin{cases}3x+2 & \text{for } x\geq 0\\ 5x-1 & \text{for } x<0\end{cases}$,
find: $f(2)$, $f(6)$, $f(-1)$, and $f(0)$.

(11) If $f(x)=\begin{cases}2 & \text{for } x<0\\ x^2+1 & \text{for } 0\leq x\leq 4\\ -1 & \text{for } x>4\end{cases}$,
find: $f(3)$, $f(6)$, $f(0)$, and $f(-3)$.