

MATH 100
Sections 8.1-8.3
Supplemental Worksheet

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

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

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

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

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

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

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 $f(-3)$.