

# Ch 1 Sec 1.1 part 3

Name: key Pre-Calculus

## Review Domain of a Function

Write the interval notation of this domain in set notation.

1.  $(-\infty, 8) \cup (12, \infty)$

Set Notations:  $\{x \in \mathbb{R} \mid x < 8 \text{ or } x > 12\}$

2.  $(-3, 1]$

Set Notations:  $\{x \in \mathbb{R} \mid -3 < x \leq 1\}$

3. What two operations affect the domain of a function?

*Even roots - since only positive numbers can be in the domain, and rational functions since non-zero numbers can be in the domain.*

4. Fill in the table for the following function.

Function	Write Condition & Solve If not conditions needed explain	Set Notation	Interval Notation
a. $f(x) = \frac{1}{2x+5}$	$2x+5 \neq 0$ since there $2x \neq -5$ should be $x \neq \frac{-5}{2}$ the denominator	$\{x \in \mathbb{R} \mid x \neq \frac{-5}{2}\}$	$(-\infty, \frac{-5}{2}) \cup (\frac{-5}{2}, \infty)$
b. $g(x) = \sqrt{3x-7}$	$3x-7 \geq 0$ since only $3x \geq 7$ Positive #'s $x \geq \frac{7}{3}$ can be in the domain	$\{x \in \mathbb{R} \mid x \geq \frac{7}{3}\}$	$[\frac{7}{3}, \infty)$
c. $h(x) = \sqrt[3]{4x-15}$	no Condition. since this is an odd root, include all numbers.	$\{x \in \mathbb{R}\}$	$(-\infty, \infty)$
d. $p(x) = x^4 - 6x + 5$	no Condition. since this is a Polynomial	$\{x \in \mathbb{R}\}$	$(-\infty, \infty)$
e. $r(x) = \frac{2x}{4x-7}$	$4x-7 \neq 0$ only non $4x \neq 7$ zero #'s $x \neq \frac{7}{4}$ in the domain	$\{x \in \mathbb{R} \mid x \neq \frac{7}{4}\}$	$(-\infty, \frac{7}{4}) \cup (\frac{7}{4}, \infty)$
f. $m(x) = \sqrt{3-5x}$	$3-5x \geq 0$ since only $3 \geq 5x$ Positive #'s $\frac{3}{5} \geq x$ can be in the domain	$\{x \in \mathbb{R} \mid x \leq \frac{3}{5}\}$	$(-\infty, \frac{3}{5}]$
g. $k(x) = \frac{1}{\sqrt{x+5}}$	$x+5 > 0$ $x > -5$	$\{x \in \mathbb{R} \mid x > -5\}$	$(-5, \infty)$
h. $v(x) = 3 - \sqrt{x}$	$x \geq 0$	$\{x \in \mathbb{R} \mid x \geq 0\}$	$[0, \infty)$