

## Week 2 Math 1508 Worksheet #2

Problem 2[sec 1.4]:

State the domain of each function then explain in two or more sentences why the domains of each pair are different.

a.  $f(x) = \sqrt{12x + 4}$  and  $g(x) = \frac{1}{\sqrt{12x+4}}$

b.  $f(x) = \sqrt{x - 8}$  and  $g(x) = \sqrt[3]{x - 8}$

Problem 2 [sec 1.5]:

Find the zeros of the functions

a.  $f(x) = \frac{x^2 - 5x - 24}{3x - 6}$

b.  $f(x) = x^3 - 64x$

Problem 3 [sec 1.5]:

True or False [You must justify your answer with an explanation. At least three sentences]

- A function with a square root cannot have a domain that is the set of all real numbers.
- It is possible for an odd function to have the interval  $[0, \infty)$  as its domain.

Problem 4 [sec 1.6]:

Sketch the graph of the piece wise function then give its domain.

BONUS QUESTION: State the range of the function.

$$h(x) = \begin{cases} \frac{1}{x+2} & x < -2 \\ \sqrt{2+x} & -2 \leq x \leq 0 \\ x^2 + 2 & x > 0 \end{cases}$$

