FST 3.4-3.5 Review

14. Consider the functions f and g with $f(x) = x$ and $g(x) = 7x$.
    a. Describe a scale change that maps the graph of f onto the graph of g. Vertical Stretch by 7 $S(x,y) \rightarrow (x,7y)$
    b. Describe a scale change that maps the graph of g onto the graph of f. (Lesson 3-5)
    Vertical Shrink by $\frac{1}{7}$ $S(x,y) \rightarrow (x, \frac{1}{7}y)$

15. Identify the following functions as odd, even or neither. Show work algebraically. ODD: $(x,y) \rightarrow (-x,-y)$ $f(-x) = -f(x)$ EVEN: $(x,y) \rightarrow (-x,y)$ $f(-x) = f(x)$

a) $f(x) = 5x^2 + 4$

ODD: $f(-x) = -f(x)$

$5(-x)^2+4 \quad -(5x^2+4)$

$5x^2+4 \neq -5x^2-4$

NOT ODD

EVEN: $f(-x) = f(x)$

$5(-x)^2+4 \quad 5x^2+4$

$5x^2+4 = 5x^2+4$

YES EVEN

b) $f(x) = |3x|$

ODD: $f(-x) = -f(x)$

$|3(-x)| \quad -|3x|$

$|-3x| \neq -|3x|$

NOT ODD

EVEN: $f(-x) = f(x)$

$|3(-x)| \quad |3x|$

$|-3x| \quad |3x|$

$|3x| = |3x|$

YES, EVEN

20. A certain hyperbola H is a translation image of the graph of $y = \frac{1}{x}$ and has asymptotes $x = 2$ and $y = -5$. Give an equation for H. (Lessons 3-2, 3-1)

$y = \frac{1}{x-2} - 5$

b) State the domain and range of the image H

D: $\{x \mid x \neq 2\}$

R: $\{y \mid y \neq -5\}$