Today's Learning Goal(s):

Date: _____
(**Every** lesson)

By the end of the class, I will be able to:

a) apply vertical **vs.** *horizontal* stretches, compressions, and reflections.

Collect "Assignments"

Last day's work: p. 28 #1 - 3
pp. 35-37 #4, 9, 11 [16, 17]

p. 37

9. Determine the domain and range of each function.

e) $q(x) = 11 - \frac{5}{2}x$

11. Write the domain and range of each function in set notation.

a) $f(x) = 4x + 1$

c) $f(x) = 3(x + 1)^2 - 4$

1.6 $y=af(x)$ Parent Functions:
1.7 $y=f(kx)$ Stretches, Compressions and Reflections

Date: Feb. 27 /19
(**Every** lesson)

Ex.1 Sketch

a) Square Root Function

$$y=\sqrt{x}$$

b) VERTICAL Stretch
by a factor of 3.

$$y=3\sqrt{x} \qquad (x, y)\longrightarrow(x, 3y)$$

Note: For this transformation
(0, 0) is an **invariant** point.

Ex.2 Given $y = f(x)$ on the graph, sketch the new function and briefly describe the transformation applied.

Note: $y = \mathbf{a}\, f(x)$

a → mulply the y-values by a

a) $y = 2f(x)$

$(x, y) \rightarrow (x, 2y)$

vertical stretch by a factor of 2

b) $y = \frac{1}{3} f(x)$

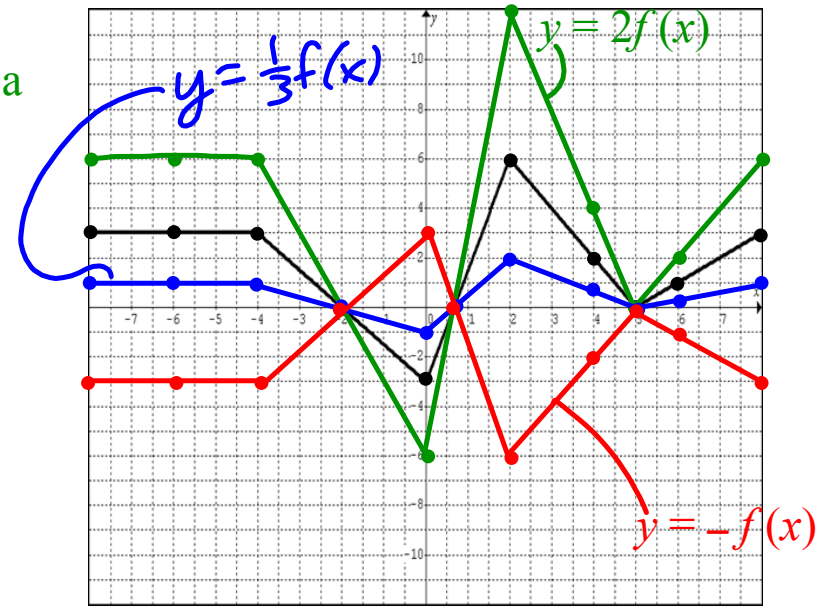
$(x, y) \rightarrow (x, \frac{1}{3}y)$

vertical compression by a factor of $\frac{1}{3}$

c) $y = -f(x)$

reflection in the x-axis

$(x, y) \rightarrow (x, -y)$



Ex.3 Given $y = f(x)$ on the graph, sketch the new function and briefly describe the transformation applied. *" backwards world "*

Note: $y = f(kx)$

k → mulply the x-values by $1/k$ $\quad \frac{1}{k}$

a) $y = f(2x)$ —— • •

$(x, y) \rightarrow (\frac{1}{2}x, y)$

horizontal compression by a factor of $\frac{1}{2}$

b) $y = f\left(\frac{1}{3}x\right)$ —— • •

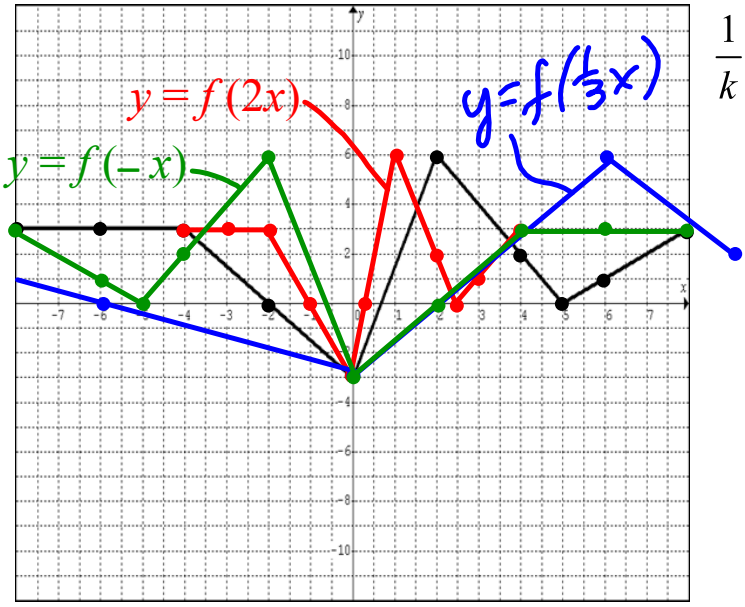
$(x, y) \rightarrow (3x, y)$

horizontal stretch by a factor of 3

c) $y = f(-x)$ ---- •

reflection in the y-axis

$(x, y) \rightarrow (-x, y)$



Ex.4 Sketch

a) Square Root Function

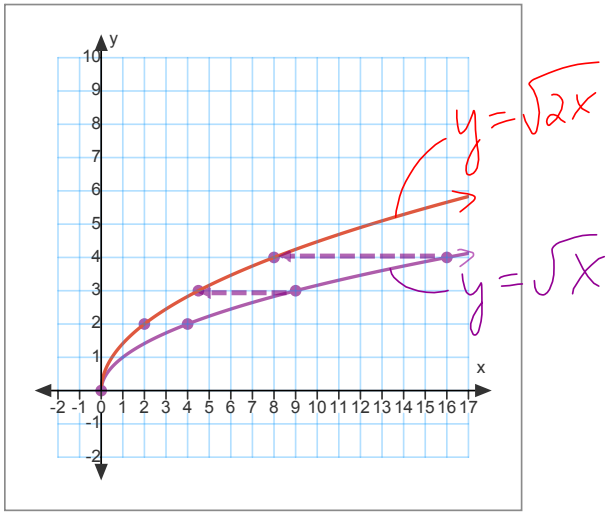
$$y = \sqrt{x}$$

b) *HORIZONTAL* COMPRESSION by a factor of ½.

$(x, y) \rightarrow (\frac{1}{2}x, y)$

$$y = \sqrt{2x}$$

Note: The x value required to make y = 4 is 8.



Are there any Homework Questions you would like to see on the board?

Last day's work: p. 28 #1 - 3
pp. 35-37 #4, 9, 11 [16, 17]

Return and correct SWYK 2.1

Today's Homework Practice includes:
p. 51 #1 – 3
pp. 58-60 #1 – 5, 8*, 10 [14, 15]
*print "web fix" for useful points