

FST 3-5 Warm up 2

1) The parent function  $y = x^2$  has been transformed by  $s(x,y) = \left(2x, \frac{y}{3}\right)$ .

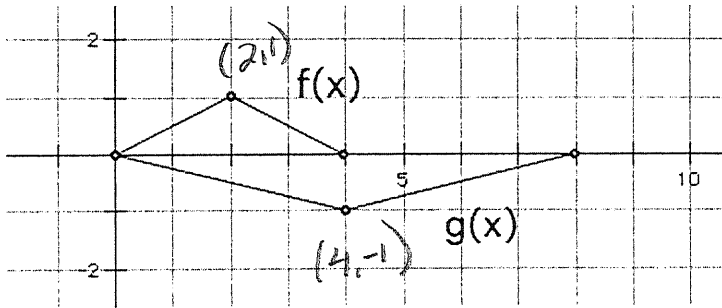
a) Write the equation for the image.

$$3y = \left(\frac{x}{2}\right)^2 \quad \text{or} \quad y = \frac{1}{3}\left(\frac{x}{2}\right)^2$$

b) Describe the transformation in words of the parent function mapped onto the image.

- Horizontal Stretch by 2
- Vertical Shrink by  $\frac{1}{3}$

2) Give a rule for a scale change that maps the graph of f onto the graph of g.



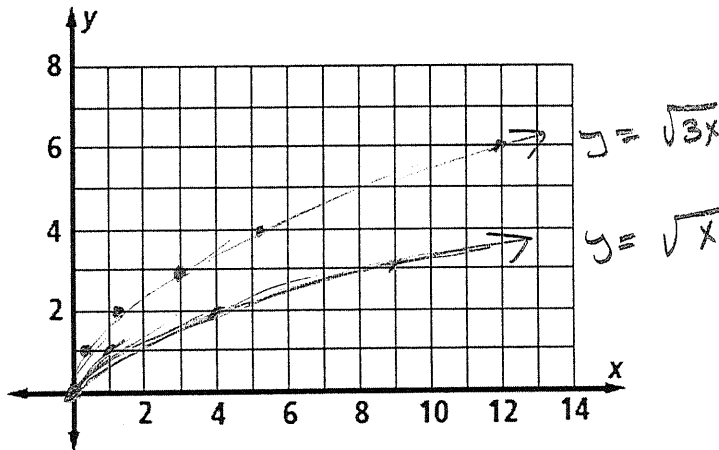
$$f(x) \rightarrow g(x)$$

$$(2,1) \rightarrow (4,-1)$$

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

3)

Sketch graphs of  $y = \sqrt{x}$  and its image under the transformation  $S(x,y) \rightarrow \left(\frac{1}{3}x, y\right)$  on the same grid.



- $y = \sqrt{3x}$
- Horizontal Shrink by  $\frac{1}{3}$

$$(1,1) \rightarrow \left(\frac{1}{3}(1), 1\right) \rightarrow \left(\frac{1}{3}, 1\right)$$

$$(4,2) \rightarrow \left(\frac{1}{3}(4), 2\right) \rightarrow \left(\frac{4}{3}, 2\right)$$

$$(9,3) \rightarrow \left(\frac{1}{3}(9), 3\right) \rightarrow (3, 3)$$

$$(16,4) \rightarrow \left(\frac{1}{3}(16), 4\right) \rightarrow \left(\frac{16}{3}, 4\right)$$