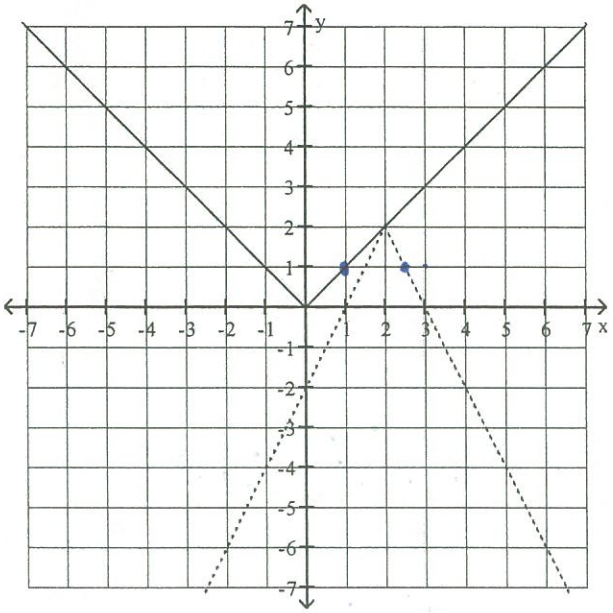
Transformation of Functions: Equations from Transformed Graphs
PreCalculus

Name KEY

Given the original function, $f(x)$, write the equation for the new (transformed) function, $g(x)$.

1) $f(x) = |x|$

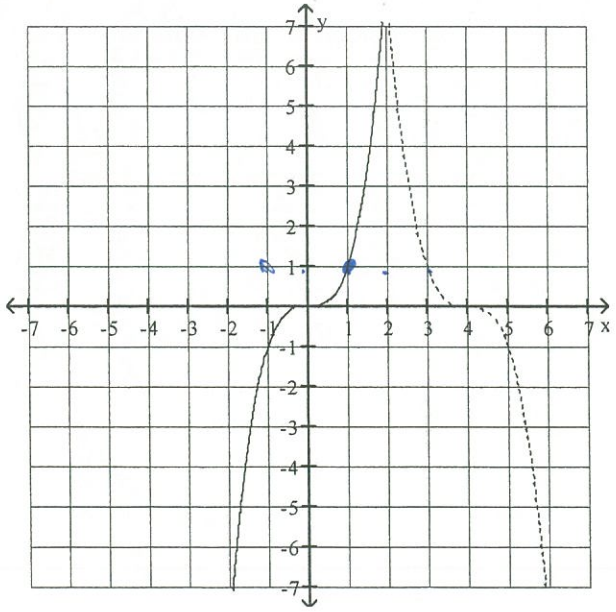
$g(x) =$ $-|2x-2|+2$ OR $-2|x-2|+2$



Reflect over x
Up 2
Rt. 2
Horiz. shrink by 2
(or vert. stretch by 2)

2) $f(x) = x^3$

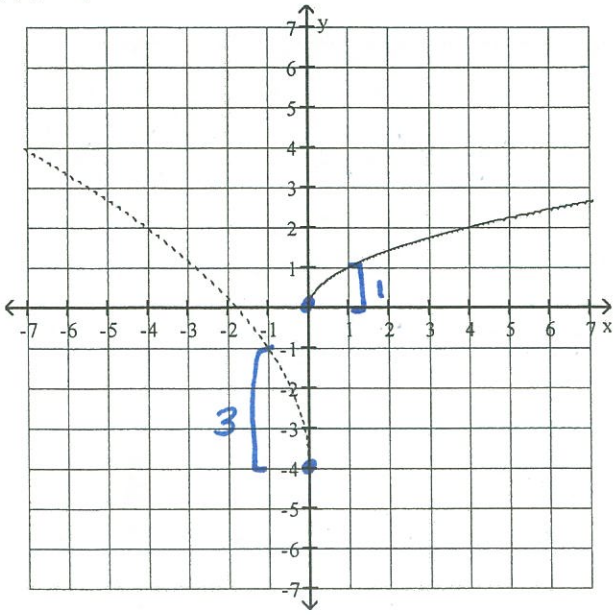
$g(x) =$ $(-x-4)^3$



Reflect over y-axis
Rt. 4

$(1,1) \rightarrow (3,1)$

3) $f(x) = \sqrt{x}$



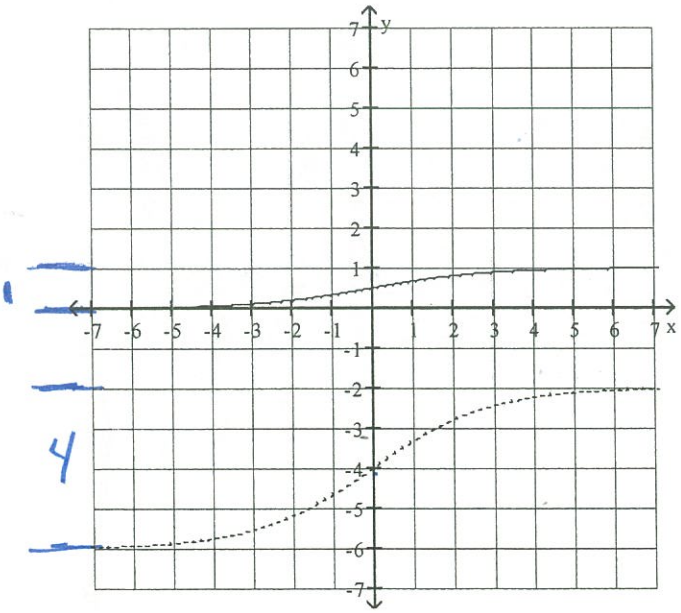
$g(x) =$ ~~$3\sqrt{-x} - 4$~~

Reflect over y-axis

↓ 4

Vert. Stretch by 3

4) $f(x) = \dfrac{1}{1+2^{-x}}$



$g(x) = 4\left(\dfrac{1}{1+2^{-x}}\right) - 4.5$

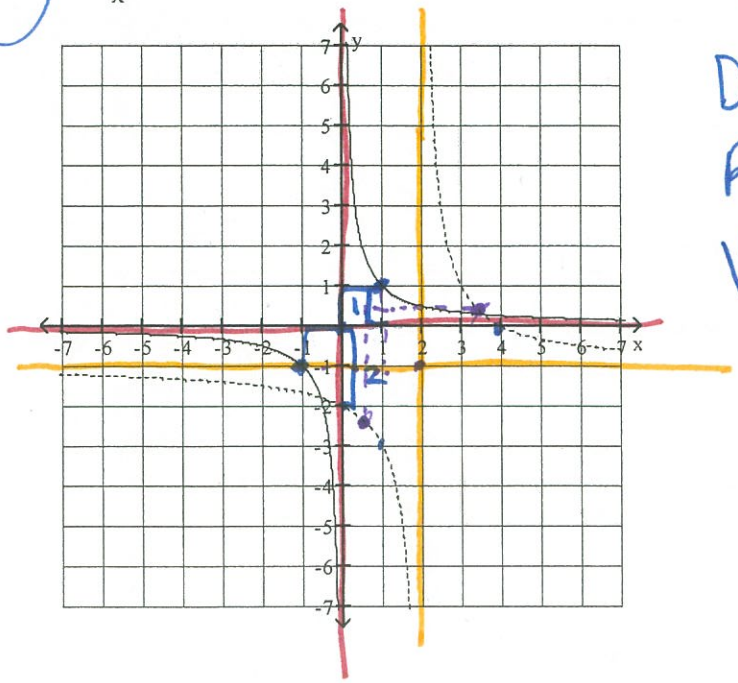
↓ 4.5

Vert. Stretch by 4

$x=1$ $(1,1) \rightarrow (1,\frac{5}{3})$

$x=-1$ $(-1,-1) \rightarrow (-1,-\frac{5}{3})$

5) $f(x) = \frac{1}{x}$ $g(x) = \frac{2\left(\frac{1}{x-2}\right)-1}{}$

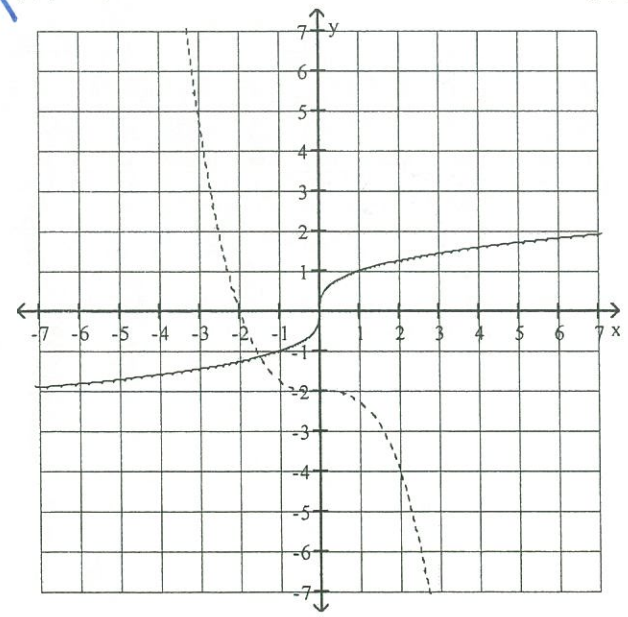


Down 1

Rt. 2

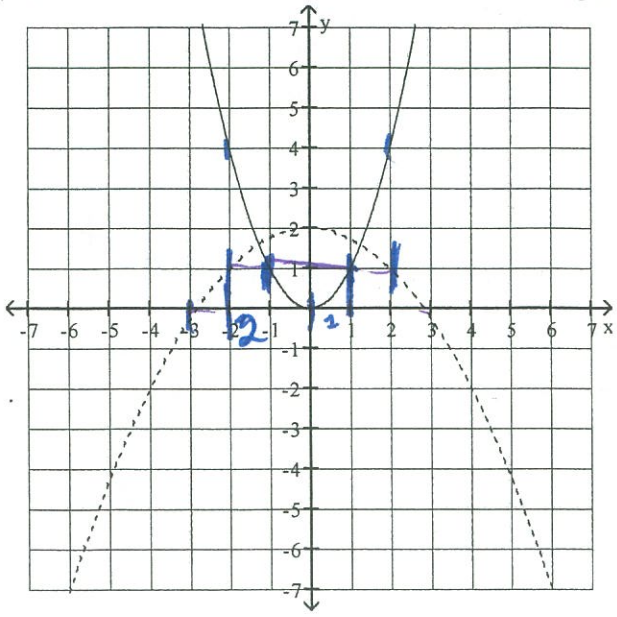
Vert. Stretch by 2 *

~~6)~~ $f(x) = \sqrt[3]{x}$ $g(x) =$ _____



7) $f(x) = x^2$

$g(x) =$ ~~[illegible]~~ $-\left(\frac{1}{2}x\right)+2$



Reflect over x-axis

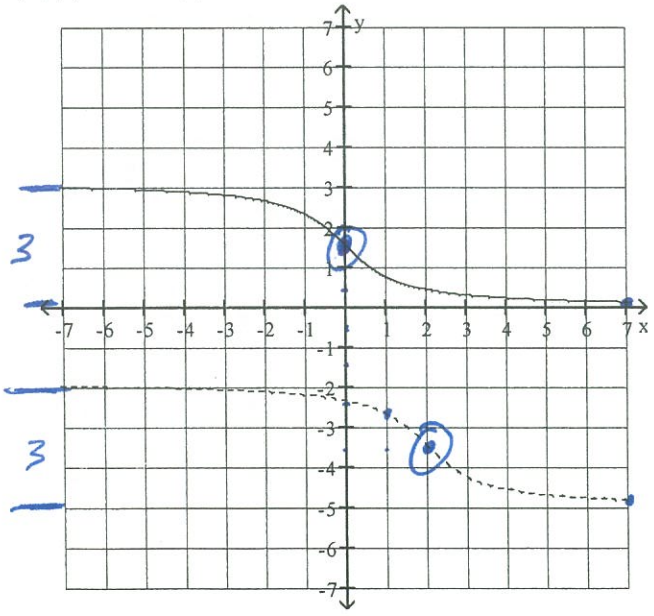
up 2

Horiz. Stretch by 2

(or Vert. shrink by)

8) $f(x) = \cot^{-1}(x)$

$g(x) = \cot^{-1}(x-2)-5$



↓5

→2