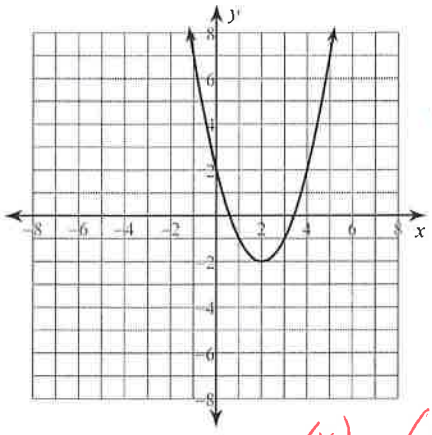
Precalculus Name Cornely ID: 1

Practice with Transformations

Date _____ Period ____

Identify the parent function $f(x)$ and write an equation for the function given.

1)

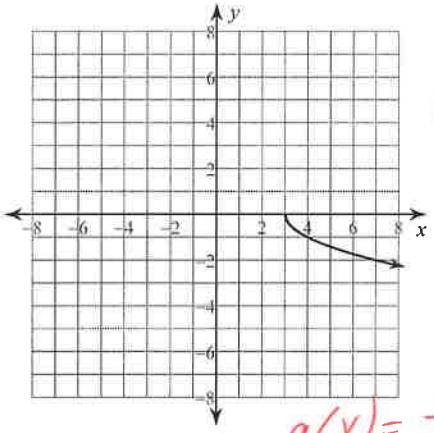


$f(x) = x^2$

right 2
down 2

$g(x) = (x-2)^2 - 2$

2)

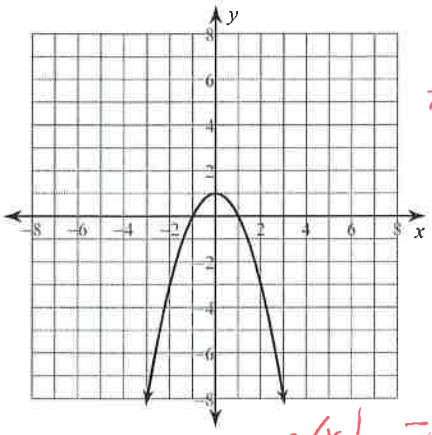


$f(x) = \sqrt{x}$

reflect over x
right 3

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

3)

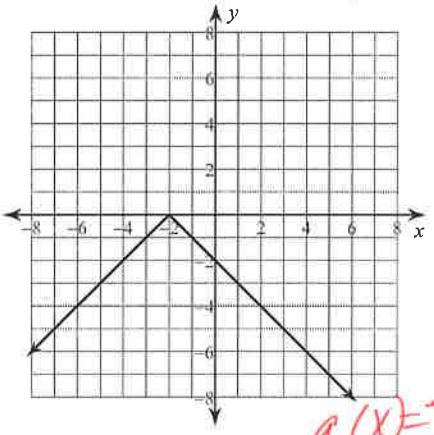


$f(x) = x^2$

up 1
reflect over x

$g(x) = -x^2 + 1$

4)

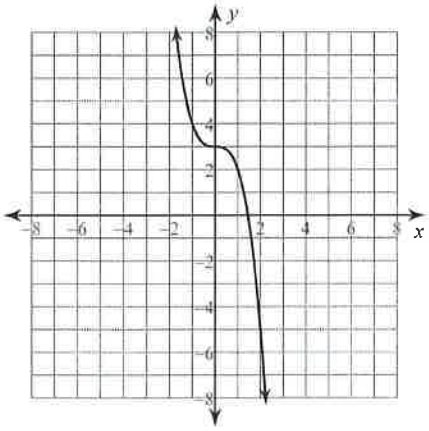


$f(x) = |x|$

left 2
reflect over x

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

5)

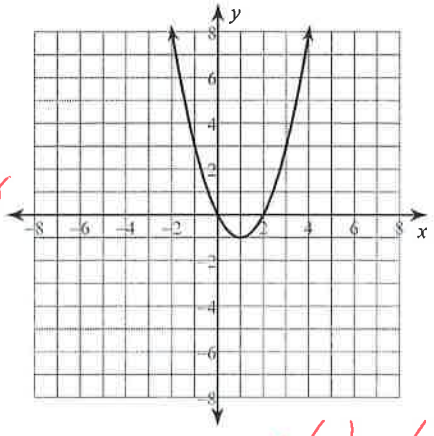


$f(x) = x^3$

reflect over x
up 3

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

6)



$f(x) = x^2$

right 1
down 1

$g(x) = (x-1)^2 - 1$

Transform the given function $f(x)$ as described and write the resulting function as an equation.

7) $f(x) = \sqrt{x}$
reflect across the y-axis
reflect across the x-axis

$g(x) = -\sqrt{-x}$

8) $f(x) = \frac{1}{x}$
reflect across the x-axis
translate up 1 unit

$g(x) = -\frac{1}{x} + 1$

9) $f(x) = \sqrt{x}$
reflect across the x-axis
translate up 2 units

$g(x) = -\sqrt{x} + 2$

10) $f(x) = x^3$
reflect across the x-axis
translate down 1 unit

$g(x) = -x^3 - 1$

11) $f(x) = |x|$
reflect across the x-axis
translate down 3 units

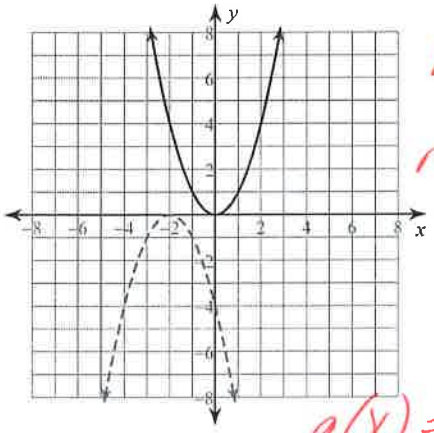
$g(x) = -|x| - 3$

12) $f(x) = x^3$
reflect across the x-axis
translate left 2 units

$g(x) = -(x+2)^3$

Write $g(x)$ (dashed line) in terms of $f(x)$ (solid line).

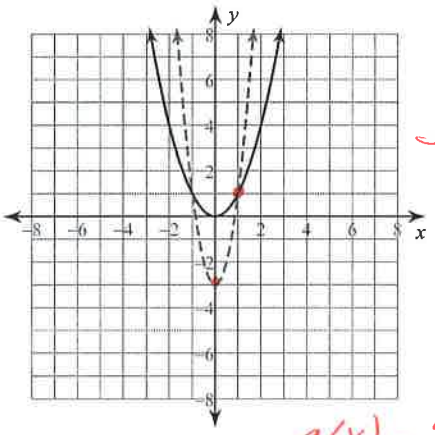
13)



left 2
reflect over x

$g(x) = -(x+2)^2$

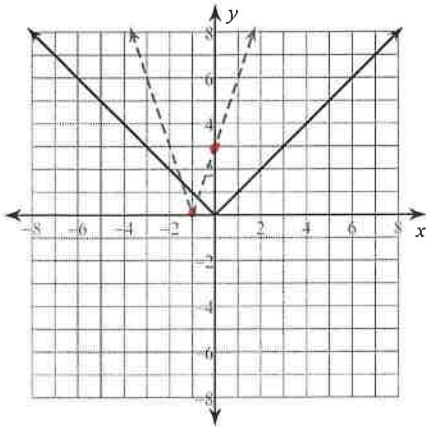
14)



down 3
stretch 4

$g(x) = 4x^2 - 3$

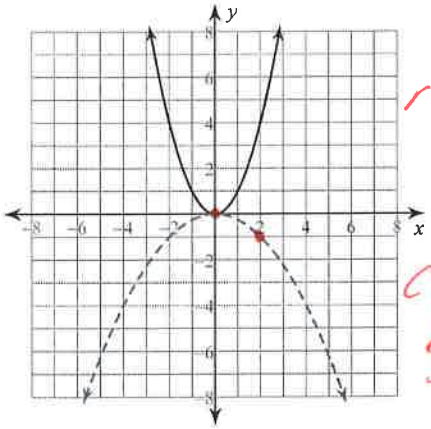
15)



left 1
stretch by a factor of 3

$g(x) = 3|x+1|$

16)

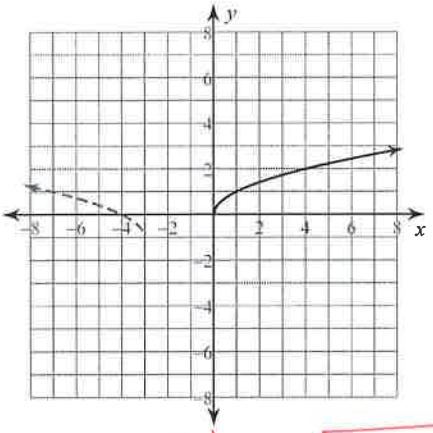


reflect over x

compressed by $\frac{1}{4}$

$g(x) = -\frac{1}{4}x^2$

17)



reflect over y.

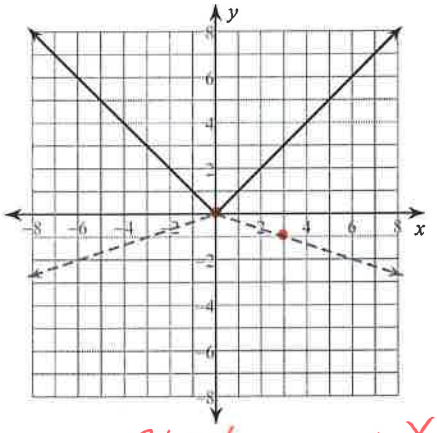
left 3

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

or

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

18)



reflect over x

compressed by $\frac{1}{3}$

$g(x) = -\frac{1}{3}|x|$