

More Practice: Transforming Functions

State the name of the basic function, **then** explain how the graph of the second functions is transformed from the basic function.

1. $f(x) = x$, $f^*(x) = x - 2$

Linear (identity)
Down 2
(or Right 2)

2. $f(x) = \sqrt{x}$, $f^*(x) = \sqrt{x+2}$

Square root
Left 2

3. $f(x) = x^2$, $f^*(x) = 3x^2 + 1$

Squaring

Stretch in y
Up 1

4. $f(x) = |x|$, $f^*(x) = \frac{1}{3}|x+5|$

Shrink in y
Left 5

absolute Value

5. $f(x) = x^3$, $f^*(x) = -6(x-1)^3$

Cubing

Flip over x-axis
stretch in y
right 1

6. $f(x) = \sqrt{x}$, $f^*(x) = \sqrt{-4x+9}$

Flip over y-axis
shrink in x
up 9

Square root

7. $f(x) = |x|$, $f^*(x) = |3x+7|$

absolute Value

$|3(x+\frac{7}{3})|$

shrink in x
Left $\frac{7}{3}$

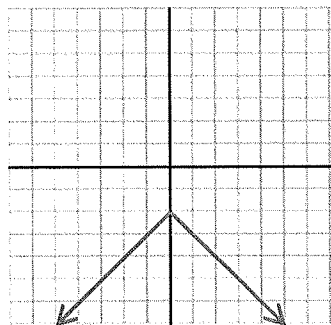
8. $f(x) = x^2$, $f^*(x) = -(2x-6)^2 + 5$

Flip over x-axis
stretch in y
right 3
up 5

$-(2(x-3))^2 + 5$
Squaring

Write the equation for the following functions using the graph:

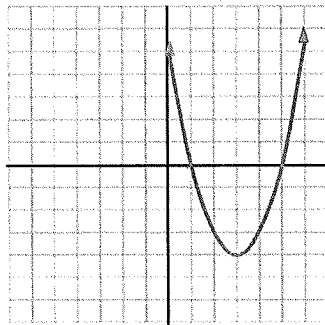
9. absolute



down 2
Flip over x

$f(x) = -|x| - 2$

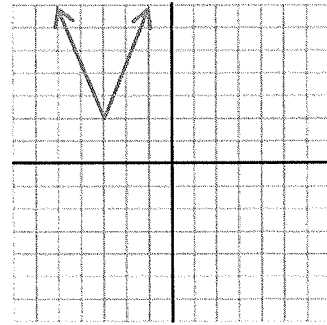
10. Squaring



Right 3
Down 4

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

11. absolute value



up 2
Left 3
Slope 2

$f(x) = 2|x+3| + 2$