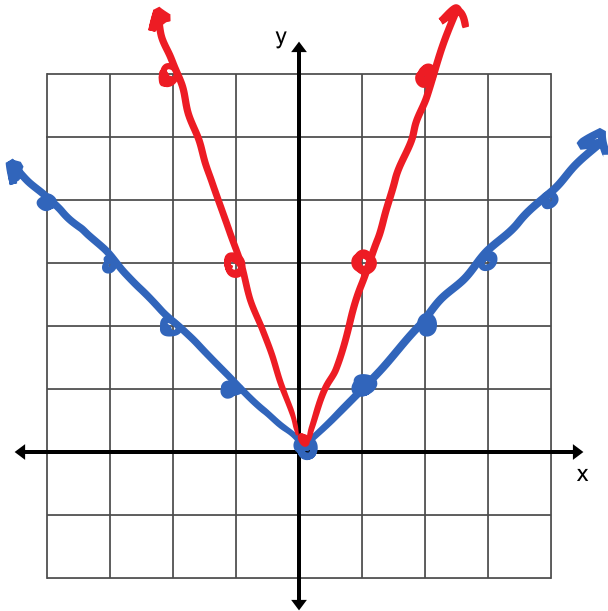
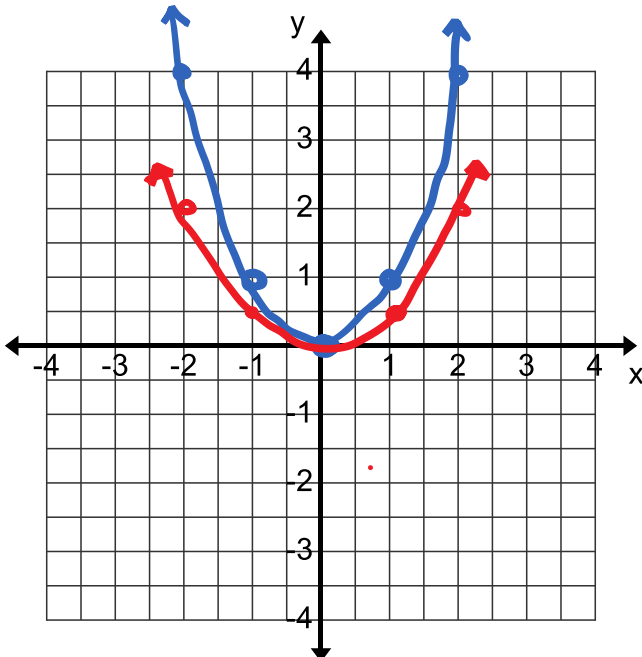


- 1.) Graph $y = |3x|$ and describe how the graph has changed from the related graph $y = |x|$.



vertical stretch by
a factor of 3
(narrower)

- 2.) Graph $y = \frac{1}{2}x^2$ and describe how the graph has changed from the related graph $y = x^2$.



vertically compress by
a factor of $\frac{1}{2}$ (wider)

3.) When the function $f(x) = x^2$ is multiplied by the value a , where $a > 1$, the graph of the new function, $g(x) = ax^2$

(a) opens upward and is wider

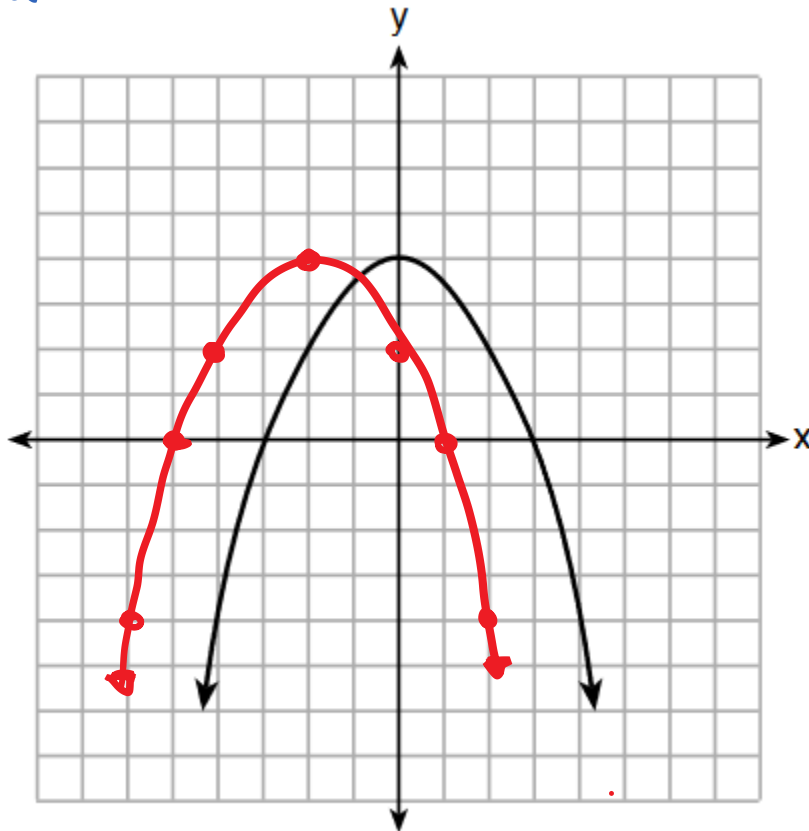
(b) opens upward and is narrower

(c) opens downward and is wider

(d) opens downward and is narrower

4.) The graph of the function $p(x)$ is represented below. On the same set of axes, sketch the function $p(x+2)$.

left 2

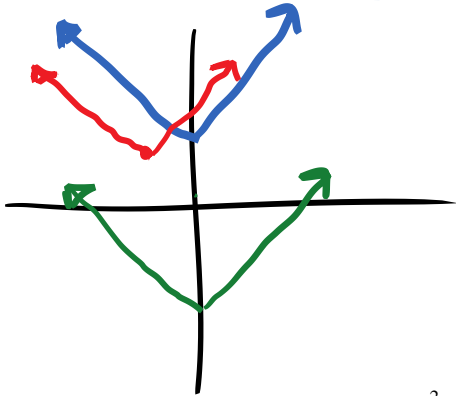


Without a calculator, determine the transformation of the function.

5.) Given: $g(x) = |x| + 4$

a. $h(x) = |x| - 3$

b. $p(x) = |x+1| + 3$



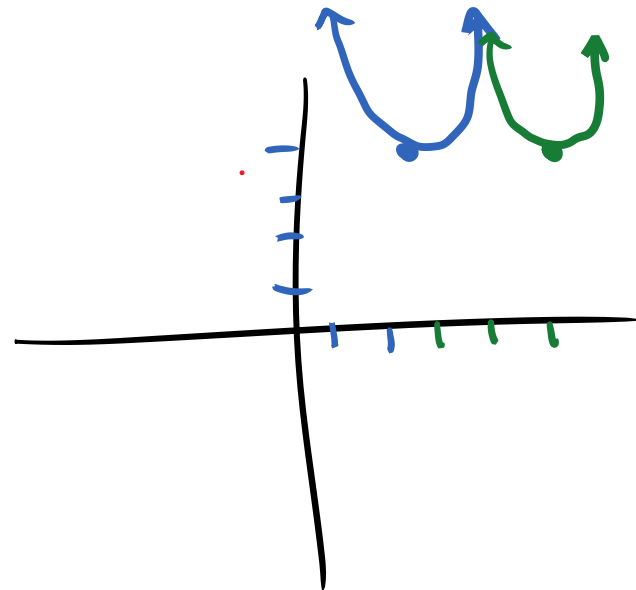
down 7

left 1
down 1

6.) Given: $f(x) = (x-2)^2 + 4$ ●
 $g(x) = (x-5)^2 + 4$ ●

When compared to the graph of $f(x)$, the graph of $g(x)$ is

- (a) shifted 3 units to the left
- (b) shifted 3 units to the right
- (c) shifted 5 units to the left
- (d) shifted 5 units to the right



7.) Given: $f(x) = x^2$ Describe the movement of $3f(x+2)$

- ~~(a) shift 2 units right and the graph is narrower~~
- (b) shift 2 units left and the graph is narrower
- ~~(c) shift 2 units right and the graph is wider~~
- (d) shift 2 units left and the graph is wider

stretch
↓

↑
left 2