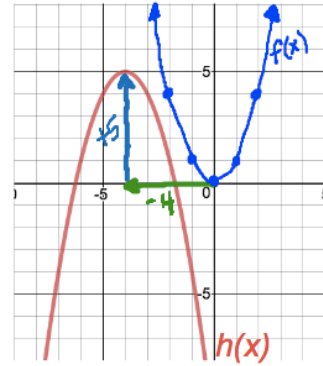


Examples:

1. Describe the transformation of $f(x) = x^2$ represented by $h(x)$ then write the rule for $h(x)$.

| | $f(x)$ | Transformation | $h(x)$ |
|---|--------|-------------------------|--------|
| a | +1 | reflected Mult by -1 | -1 |
| h | 0 | 4 units left subt 4 | -4 |
| k | 0 | 5 units up Add 5 | +5 |

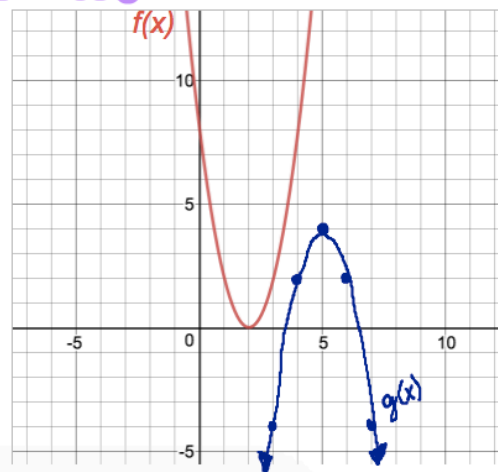
$$h(x) = -(x+4)^2 + 5$$



2. The function $g(x)$ is a transformation of $f(x) = 2(x-2)^2$ that is translated 3 units to the right, 4 units up, and is reflected over the x-axis. Write a rule for $g(x)$ in vertex form.

| | $f(x)$ | Transformation | $g(x)$ |
|---|--------|-------------------------|--------|
| a | +2 | reflected Mult by -1 | -2 |
| h | +2 | 3 units right add 3 | +5 |
| k | 0 | 4 units up add 4 | +4 |

$$g(x) = -2(x-5)^2 + 4$$



3. Identify the transformations that map $f(x) = x^2$, onto $h(x) = x^2 - 6x + 6$.

re-write
in vertex form:
(completing sq)

find a, h, + k

$$g(x) = (x^2 - 6x + 9) + 6 - 9$$

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

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

$a=1$ $h=3$ $k=-3$

| | $f(x)$ | Transformation | $h(x)$ |
|---|--------|-----------------|--------|
| a | 1 | $a=1$ No change | 1 |
| h | 0 | $h=3$ Add 3 | 3 |
| k | 0 | $k=-3$ Subtr 3 | -3 |

