If $f(x)$ is a function and $c > 0$, then

Operation	Result on the graph of $f(x)$
$f(x+c)$	Shift LEFT c units
$f(x-c)$	Shift RIGHT c units
$f(x)+c$	Shift UP c units
$f(x)-c$	Shift DOWN c units
$f(-x)$	Reflect about the $y-$axis
$-f(x)$	Reflect about the $x-$axis

1. Describe the combination of translations and/or reflections needed to get the given function from $f(x)$.

   (a) $f(x-1)$
   (b) $f(x)-1$
   (c) $f(x)+1$
   (d) $f(x+1)$
   (e) $f(-x)+1$
   (f) $f(-x)-1$
   (g) $-f(x)+1$
   (h) $-f(x+1)$
   (i) $-f(x)-1$
   (j) $-f(-x)+1$
   (k) $f(1-x)+1$
   (l) $-f(1-x)-1$

2. Let the graph of $f(x)$ be a line segment from $(-3, 2)$ to $(0, 0)$. Graph the following:

   (a) $f(x)-2$
   (b) $f(x-3)-2$

3. Describe the combination of translations and/or reflections needed to get the given function from one of the basic functions. (Say what the basic function is.) Then graph the function.

   (a) $g(x) = \dfrac{1}{x^2} + 1$
   (b) $g(x) = -(x+2)^2 - 3$
   (c) $g(x) = \sqrt{1-x}$
   (d) $g(x) = 4 - |x+1|$
   (e) $g(x) = \dfrac{1}{3-x} + 1$

4. For each function determine whether it is odd, even, or neither.

   (a) $h(x) = x^5 + x^3 + x$
   (b) $h(x) = x^6 + 5x^2 + 4$
   (c) $h(x) = x^3 + 2x^2$
   (d) $h(x) = |x|$