**Applications:**

1. a) If you want to apply a horizontal translation 4 units to the right and a translation 5 units up to the function $f\left(x\right)=\sqrt{x}, $what will the equation of the new function g be?

b) Apply a reflection around the *x*-axis and a horizontal stretch factor 3 to the function *g* . What will the equation of the new function *h* be?

c) Which transformations would you use to go directly from *f* to *h*?

1. a) If you want to apply a horizontal stretch factor $\frac{1}{2}$ and a reflection around the *x*- axis to the graph of a function *f* (not the one from the previous question), what will the equation of the function be?

b) Do it to$ f\left(x\right)=3\left(x-4\right)^{2}-1$.

c) If you want to compare the graph of the function you just got on question b. to the graph of $y=x^{2}$, which transformations would you use in the right order?

**Your turn**:
1) a) If you want to apply a horizontal stretch factor $2$ and a translation 4 units down to the function , $f\left(x\right)=x^{2}$, what will the equation of the new function g be?

b) Apply a reflection around both axis and a horizontal translation 3 units to the left to the function *g* . What will the equation of the new function *h* be?

c) Which transformations would you use to go directly from *f* to *h*?

2) a) If you want to apply a vertical stretch factor 5 and a reflection around
 the *y*- axis to the graph of a function *f*, what will the expression be?

 b) Do it to $y=\sqrt{x}$ and then to $y=2\sqrt{x+4}-3$.

 c) If you want to compare the graph of the second function you just got on b) to
 the graph of $y=\sqrt{x}$ , which transformations would you use in the right order?