

For each problem, given that the mother function is  $f(x) = x^2$

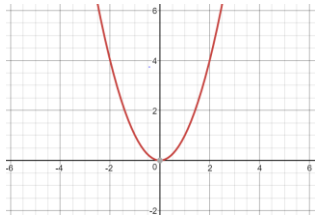
a) Using either a TI-84 or Desmos, sketch the transformed graph

b) Follow the points (0,0) and (1,1) and write its new coordinate

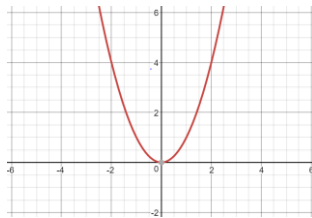
c) Describe the transformation

d) Write the transformed function in function notation

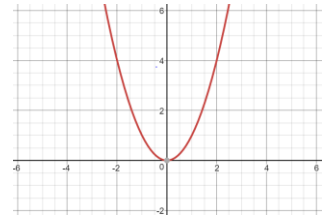
1.  $f(x) = x^2 - 2$



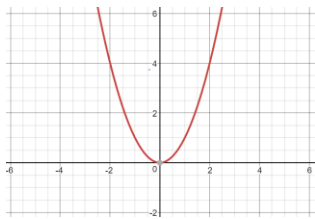
2.  $f(x) = (x-2)^2$



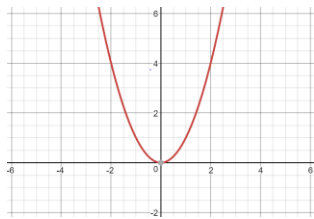
3.  $f(x) = (x-2)^2 - 2$



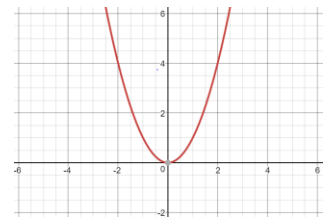
4.  $f(x) = \frac{1}{2}x^2$



5.  $f(x) = \left(\frac{1}{2}x\right)^2$

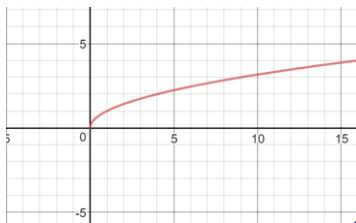


6.  $f(x) = (2x)^2$

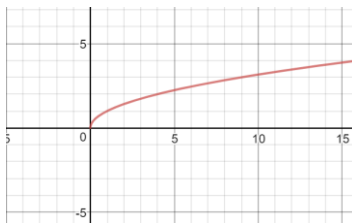


For #'s 7 – 12 let the mother function be  $f(x) = \sqrt{x}$

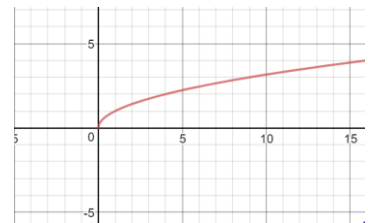
7.  $f(x) = -\sqrt{x}$



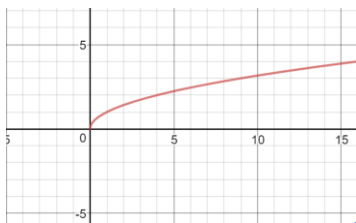
8.  $f(x) = \sqrt{-x}$



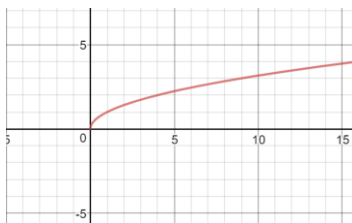
9.  $f(x) = -\sqrt{-x}$



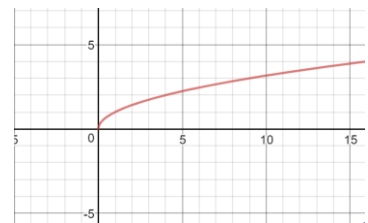
10.  $f(x) = \sqrt{x+1} + 3$



11.  $f(x) = -\sqrt{x+1} + 3$



12.  $f(x) = \sqrt{1-x} + 3$



13. Look at Graphs 1-3 and write an observation that may be considered as a big idea regarding that group.

14. Look at Graphs 4 and 5 and write an observation that may be considered as a big idea regarding those two.

15. Look at Graphs 5 and 6 and write an observation that may be considered as a big idea regarding those two.

16. Look at Graphs 7-9 and write an observation that may be considered as a big idea regarding that group.