

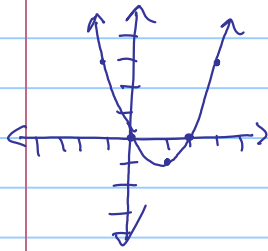
3.4 Combining Transformations

Note Title

04/10/2012

Does order matter?

For the graph of $y = f(x)$ shown

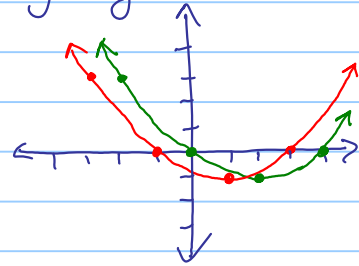


① Expand horizontally by 2

② Move 1 left

$x \rightarrow \frac{1}{2}x$ so $y = f(\frac{1}{2}x)$

$x \rightarrow x+1$ so $y = f(\frac{1}{2}(x+1))$

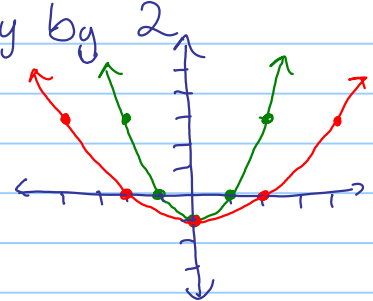


① Move 1 left

② Expand horizontally by 2

$x \rightarrow x+1$ so $y = f(x+1)$

$x \rightarrow \frac{1}{2}x$ so $y = f(\frac{1}{2}x + 1)$



If the equation is written as
 $y = af[b(x-c)] + d$

the order is : ① Stretches & Reflections
 ② Translations

Example: State the transformations (in order)
 for $y = -\frac{1}{2}f(2x-6) + 1$ Factor first

$$y = -\frac{1}{2}f[2(x-3)] + 1$$

any order {
 - vertical compression by $\frac{1}{2}$
 - reflection in x -axis
 - horizontal compression by $\frac{1}{2}$
 any order {
 - translation up by 1
 - " " right by 3