1.3: Combining Transformations

$$y-k = af(b(x-h))$$

or

$$y = af(b(x-h))+k$$

$|a| = $ v.s $h \rightarrow$ h.t

$\frac{1}{|b|} = $ h.s $k \rightarrow$ v.t

ex.1 pg. 34

Table

x	y
0	0
1	1
4	2
9	3

$y = 3f(2x)$

3: v.s of $\frac{1}{2}$: h.s

$(x,y) \rightarrow (\frac{1}{2}x, 3y)$

New table

x	y
0	0
0.5	3
2	6
4.5	9

* Graph pg. 35

b) $y = f(3x+6)$

* factor out the stretch factor

$y = f(3(x+2))$

3: h.s of $\frac{1}{3}$; $+2$: h.t of -2

$(x,y) \rightarrow (\frac{1}{3}x-2, y)$

x	y
0	0
1	1
4	2
9	3

x	y
-2	0
$-1\frac{2}{3}$ or $-\frac{5}{3}$	1
$-\frac{2}{3}$	2
1	3

2/ $f(x)=x^2$

$g(x)=-\frac{1}{2}f(2(x-4))+1$

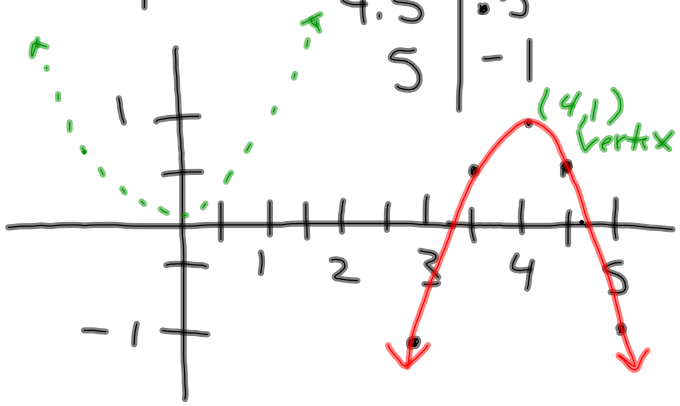
reflect vs of $\frac{1}{2}$ L.S of $\frac{1}{2}$ Rt 4 U.t of 1

Sketch the graph and write the equation for g(x)

$(x,y)\rightarrow\left(\frac{1}{2}x+4,\ -\frac{1}{2}y+1\right)$

x	y
-2	4
-1	1
0	0
1	1
2	4

x	y
3	-1
3.5	.5
4	1
4.5	.5
5	-1



equation

$y=-\frac{1}{2}(2(x-4))^2+1$

If $f(x)=|x|$

$y=-\frac{1}{2}|2(x-4)|+1$

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