

MTH 166 Homework #2 Key

1a. key points  $(-6, 1), (1, 1), (3, 3), (6, 0), (10, 0)$

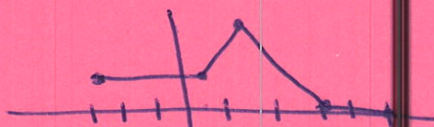
i.  $f(x+1)$  left shift by 1

points  $(-7, 1), (0, 1), (2, 3), (5, 0), (9, 0)$



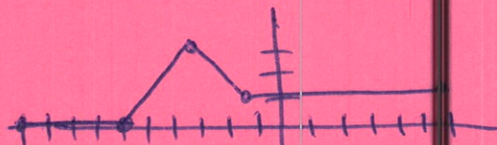
ii.  $f(2x)$  compress by 2 ( $1/2$ ) horizontal

points  $(-3, 1), (1/2, 1), (3/2, 3), (3, 0), (5, 0)$



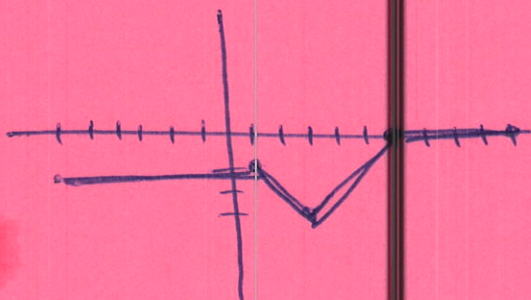
iii.  $f(-x)$  horizontal reflection

points  $(6, 1), (-1, 1), (-3, 3), (-6, 0), (-10, 0)$



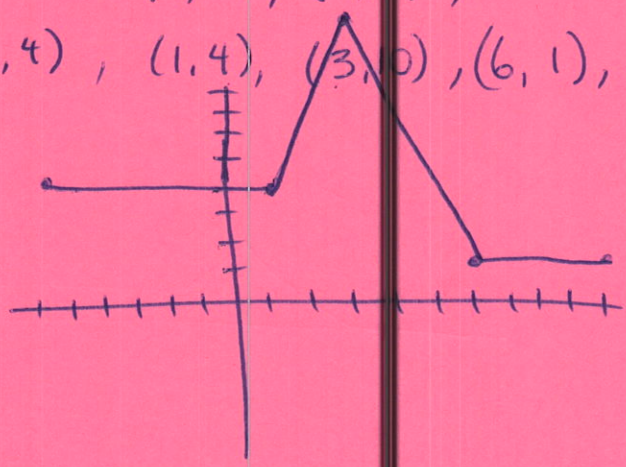
iv.  $-f(x)$  vertical reflection

points  $(-6, -1), (1, -1), (3, -3), (6, 0), (10, 0)$



1a. v.  $3f(x)+1$  vertical stretch + vertical shift up 1

points stretch  $(-6,3), (1,3), (3,9), (6,0), (10,0)$   
+1  $(-6,4), (1,4), (3,10), (6,1), (10,1)$

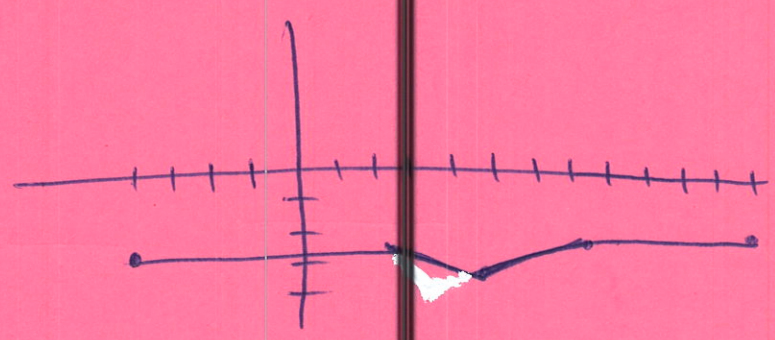


vi.  $-\frac{1}{2}f(x-3)-2$  horizontal shift +2, vertical reflection, vertical compression 1/2, vertical shift down 2

points H. shift  $(-4,1), (3,1), (5,3), (8,0), (12,0)$

v. refl + comp  $(-4, -\frac{1}{2}), (3, -\frac{1}{2}), (5, -\frac{3}{2}), (8,0), (12,0)$

shift down  $(-4, -\frac{5}{2}), (3, -\frac{5}{2}), (5, -\frac{7}{2}), (8,-2), (12,-2)$



b.  $f(x) = \sqrt{x}$

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

ii.  $f(2x) = \sqrt{2x}$

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

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

