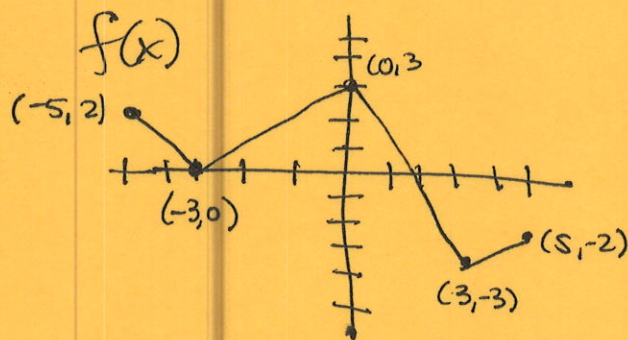
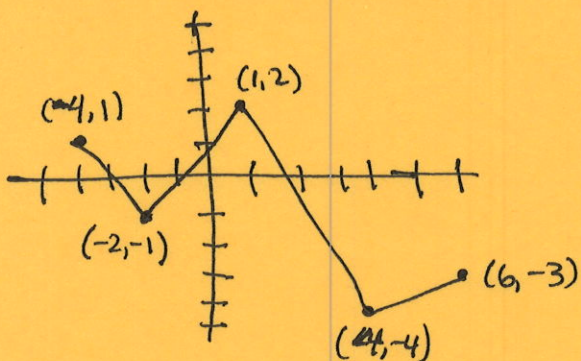


# MAT 142 Homework #3 Key

1

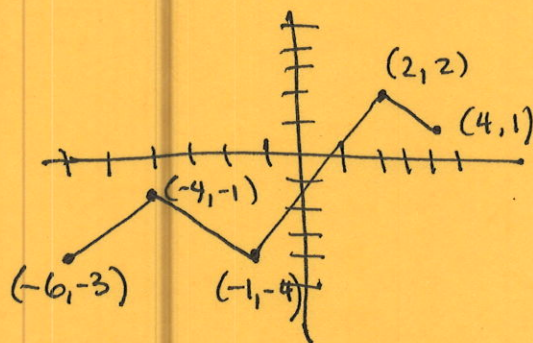
a.  $f(x-1) - 1$

move +1 in x  
move -1 in y



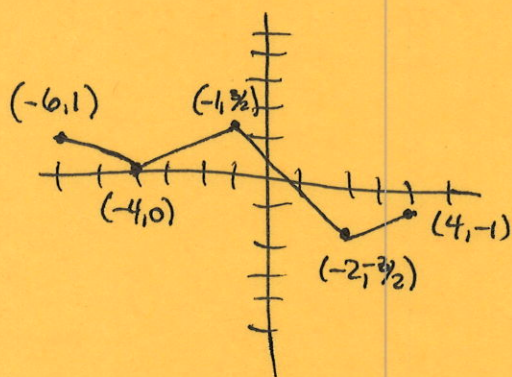
b.  $-f(x+1) - 1$

move +1 in x  
reflect vertically (flip sign of y)  
move -1 in y



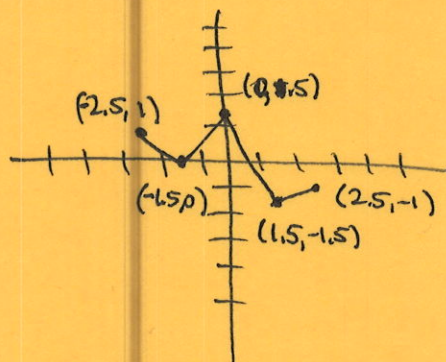
c.  $\frac{1}{2}f(x+1)$

move left 1 in x  
compress y by  $\frac{1}{2}$



d.  $\frac{1}{2}f(2x)$

compress x by 2  
compress y by  $\frac{1}{2}$



2. see next page(s)

3. a.  $f+g = 2x^2 - x + 3 + x + 1 = 2x^2 + 4$

D:  $\{x \mid x \text{ is all reals}\}$

R:  $[4, \infty)$

b.  $fg = (2x^2 - x + 3)(x + 1) =$

$2x^3 + 2x^2 - x^2 - x + 3x + 3 = 2x^3 + x^2 + 2x + 3$

D:  $(-\infty, \infty)$

R:  $(-\infty, \infty)$

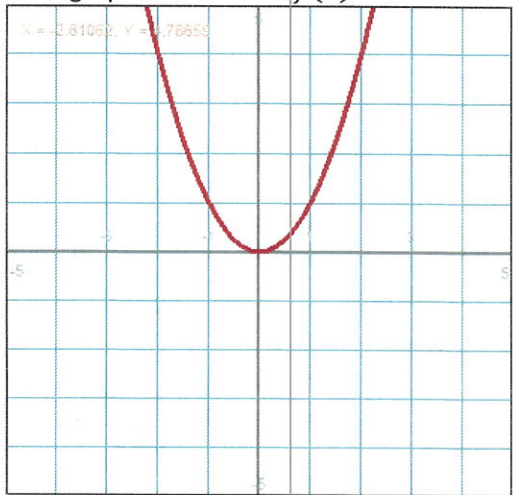
c.  $\frac{g}{f} = \frac{x+1}{2x-3} = \frac{x+1}{2x-3}$

D:  $x \neq -1, \frac{3}{2}$   $y \neq 0, y \neq -\frac{1}{5}$

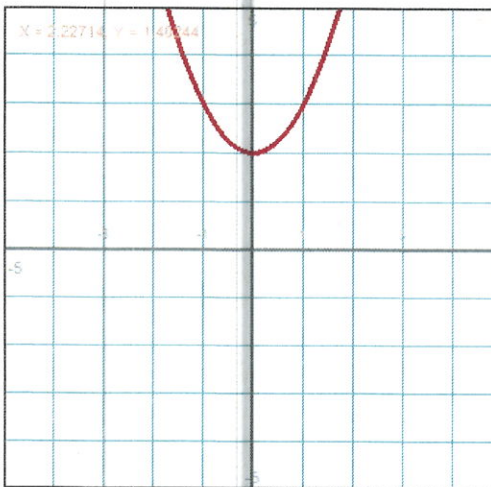
#2

Base graph

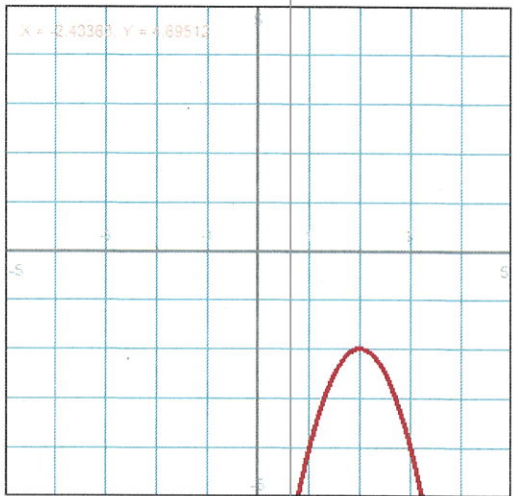
$$f(x) = x^2$$



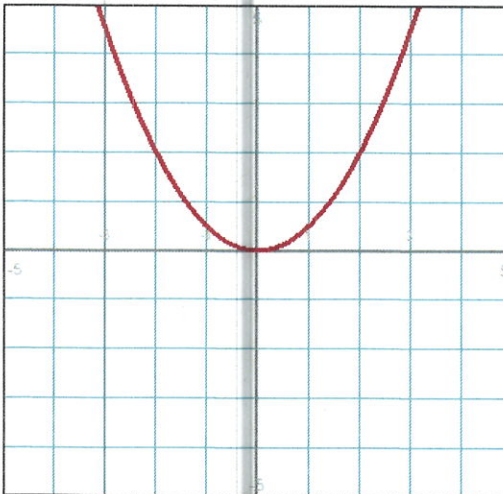
a.



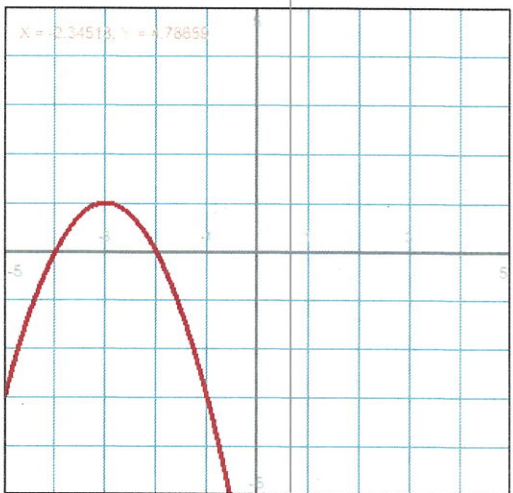
b.



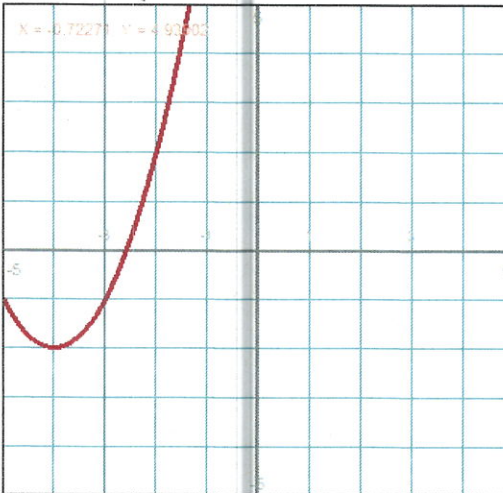
c.



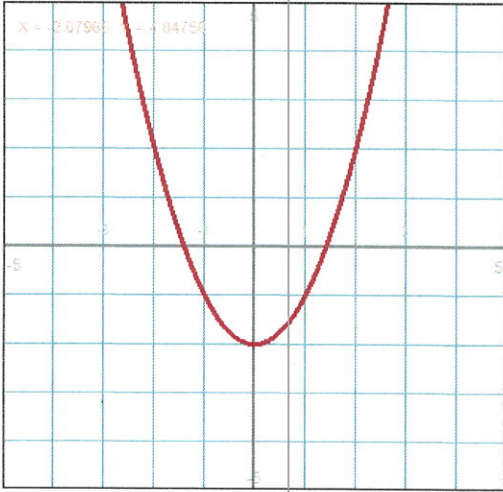
d.



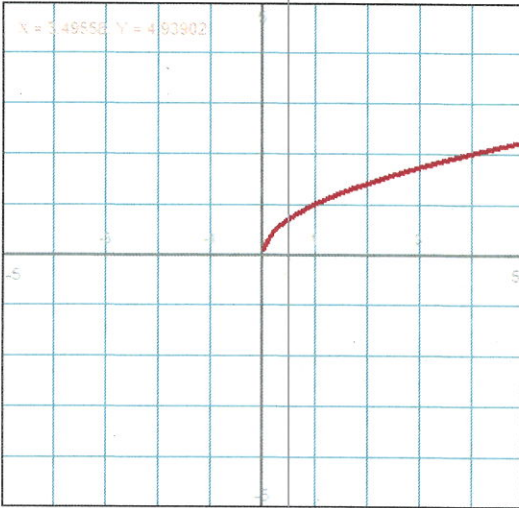
e.



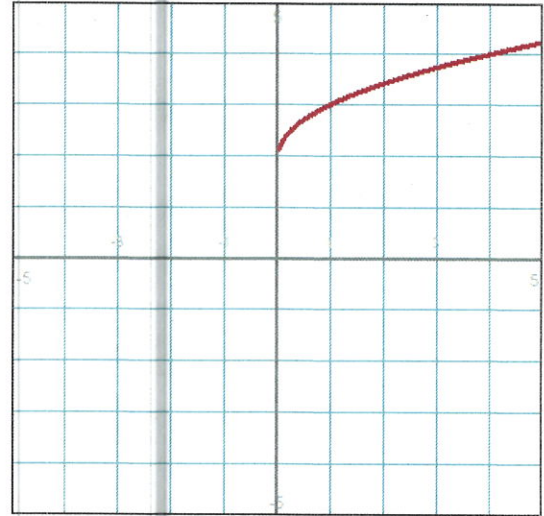
f.



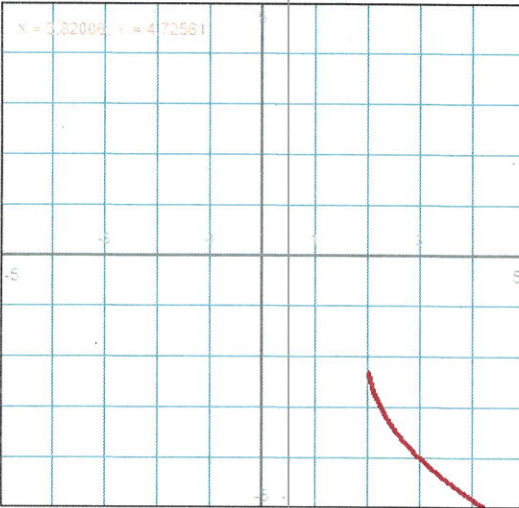
Base graph  $g(x) = \sqrt{x}$



a.



b.



c.

