

Higher HW5

1a. $h(x) = f(g(x))$
 $= f(2x+3)$
 $= \frac{1}{2x+3-4}$
 $= \frac{1}{2x-1}$

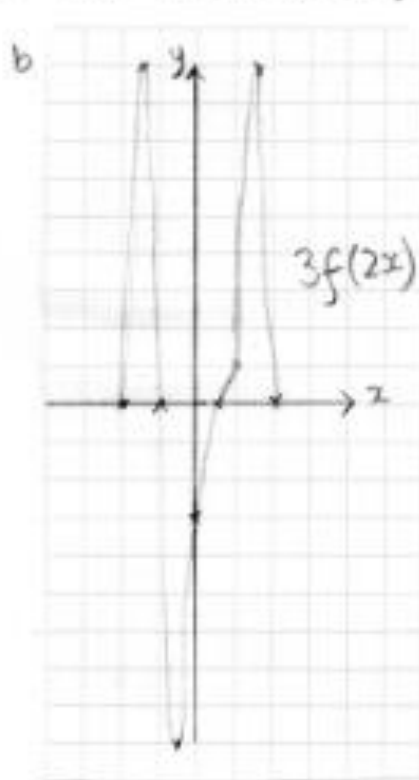
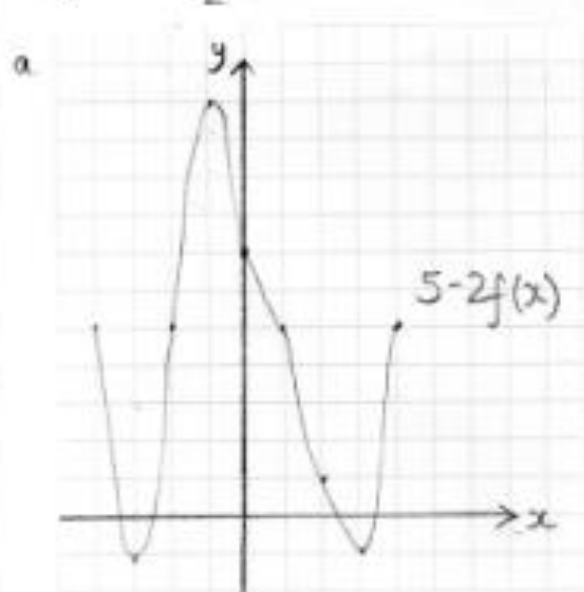
b. $2x-1=0$
 $2x=1$
 $x=\frac{1}{2}$
 $x \in \mathbb{R}: x \neq \frac{1}{2}$

2a. $-2f(x)+5$ $(-4,5) (-3,-1) (-2,5) (-1,11) (0,7) (1,5) (2,1) (3,-1) (4,5)$

\nearrow x y coord by -2 \nearrow +5 to y coord

b. $3f(2x)$ $(-2,0) (-\frac{1}{2},9) (-1,0) (\frac{1}{2},-9) (0,-3) (\frac{3}{2},0) (1,1) (\frac{3}{2},9) (2,0)$

\nearrow x y coord by 3 \nearrow - each x by 2

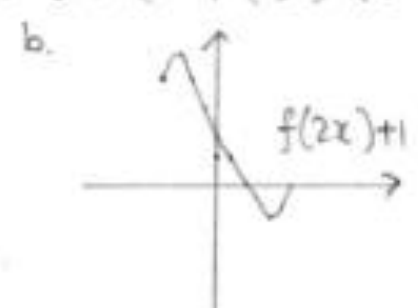
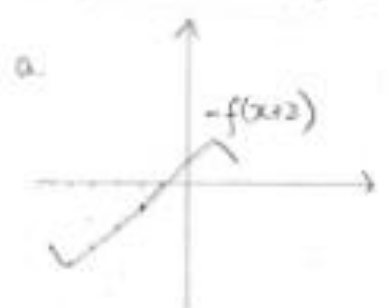
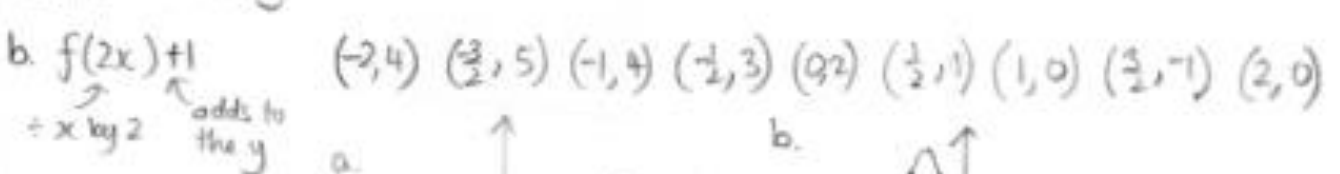
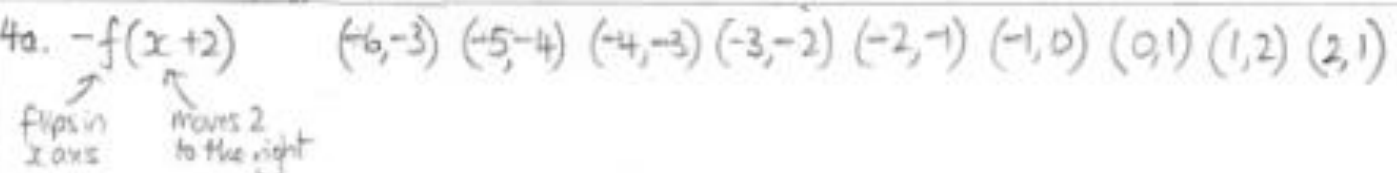
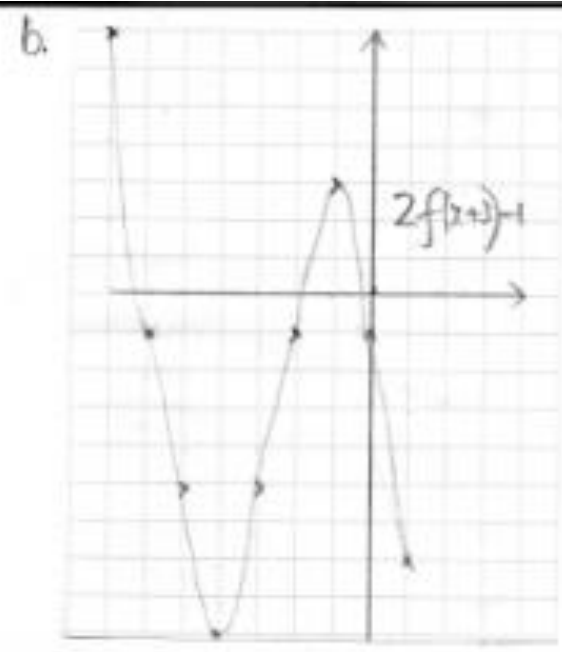
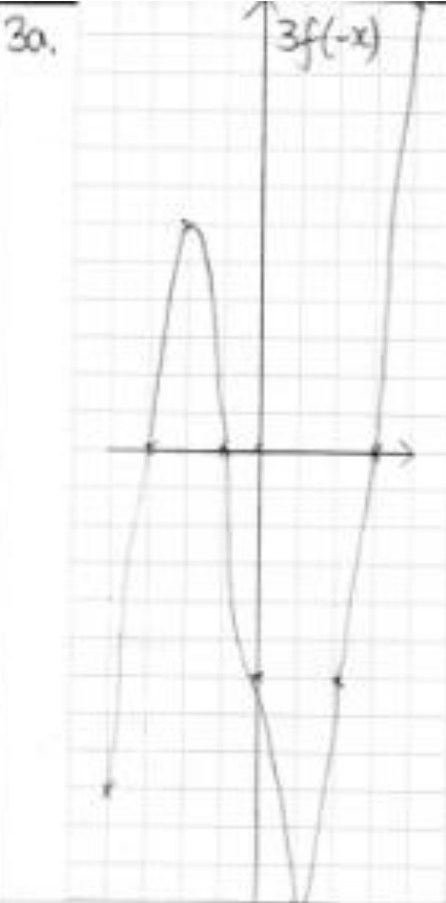


3a. $3f(-x)$ $(4,12) (3,0) (2,-6) (1,-12) (0,-6) (-1,0) (-2,6) (-3,0) (-4,-9)$

\nearrow x y coord by 3 \nearrow flips in the y-axis

b. $2f(x+3)-1$ $(-7,7) (-6,7) (-5,-5) (-4,-9) (-3,-5) (-2,-1) (-1,3) (0,-1) (1,-7)$

\nearrow x y coord by 2 \nearrow move x 3 left \nearrow subtract from y



5a. $x^2 + 6x + 15$
 $= (x+3)^2 + 6$

b. $x^2 - 9x - 2$
 $= (x - \frac{9}{2})^2 - \frac{89}{4}$

6. $f(-3) = 5x(-3)^2 - 7x(-3) + 3$
 $= 5 \times 9 + 21 + 3$
 $= 69$