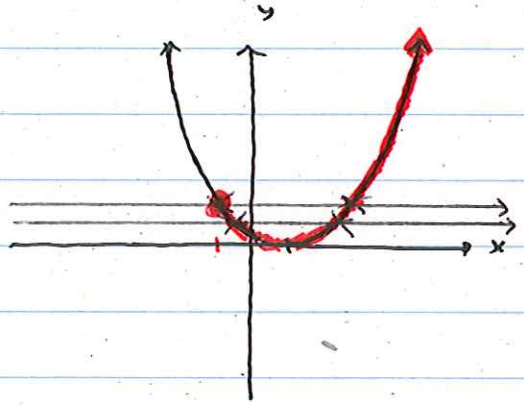
HW 10 solutions

3.6.4) $f(x) = (x-1)^2, \quad x \geq -1$

$f(x) = (x-1)^2$



This is not 1-1

$f(x) = (x-1)^2$ where $x \geq -1$

3.4.16) This function is 1-1.

3.6.18) $f(x) = \frac{3}{2}x - 4, \quad g(x) = \frac{2x+8}{3}$

Note:
$D(g) = (-\infty, \infty)$
$D(f) = (-\infty, \infty)$

$$(f \circ g)(x) = f\left(\frac{2x+8}{3}\right) = \frac{3}{2}\left(\frac{2x+8}{3}\right) - 4$$

$$= x + 4 - 4 = x \qquad D(f \circ g) = (-\infty, \infty)$$

$$(g \circ f)(x) = g\left(\frac{3}{2}x - 4\right) = \frac{2\left(\frac{3}{2}x - 4\right) + 8}{3} = \frac{3x - 8 + 8}{3} = x$$

$D(g \circ f) = (-\infty, \infty)$

So f and g are inverses!