4.2 p. 269 #'s 63 & 71

63.) $f(x) = \frac{2x}{3x-1}$

① change x's to y's & vice versa

$x = \frac{2y}{3y-1}$

Domain of f: $\{x \mid x \neq \frac{1}{3}\}$

Range of f: $\{y \mid y \neq \frac{2}{3}\}$

* Hint: The range of f = the domain of f^{-1}.

② mult each side by $(3y-1)$ & distribute

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

$3xy - x = 2y$

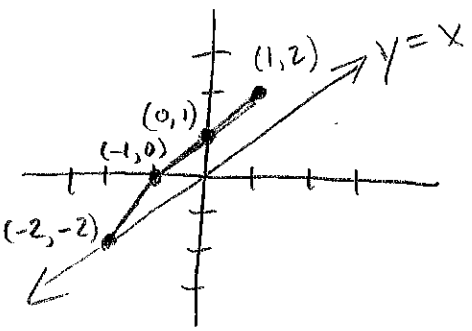
③ Put any term w/a y on the left side & everything else on the right, then factor out a y on the left side and solve for y.

$3xy - 2y = x$

$y(3x-2) = \frac{x}{3x-2}$

$f^{-1}(x) = \frac{x}{3x-2}$

71.) use graph from #31 on p. 268



a.) $f(-1) = 0$ (when $x = -1$, what is y?)

b.) $f(1) = 2$ (when $x = 1$, what is y?)

c.) $f^{-1}(1) = 0$ (when $y = 1$, what is x?)

d.) $f^{-1}(2) = 1$ (when $y = 2$, what is x?)