**MTH 130 Precalculus, Classwork 4** **Fall 2014**

(1) Find formulas for the inverse function of the following functions.

(a) $\frac{1}{x+1}$

$y = \frac{1}{x+1}$ $\quad y(x+1) = 1$ $\quad xy + y = 1$

$xy = 1 - y$ $\quad x = \frac{1-y}{y}$ $\quad f^{-1}(x) = \frac{1-x}{x}$

(b) $\frac{2x-3}{4-4x}$

$y = \frac{2x-3}{4-4x}$ $\quad y(4-4x) = 2x-3$ $\quad 4y - 4xy = 2x-3$

$4y+3 = 2x+4xy$ $\quad 4y+3 = x(2+4y)$ $\quad x = \frac{4y+3}{2+4y}$.

$f^{-1}(x) = \frac{4x+3}{2+4x}$

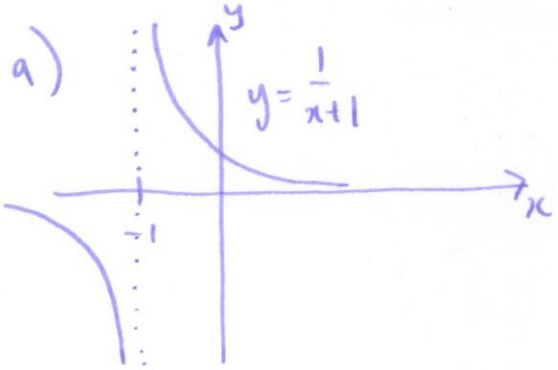
(c) $\sqrt{2x-1}$

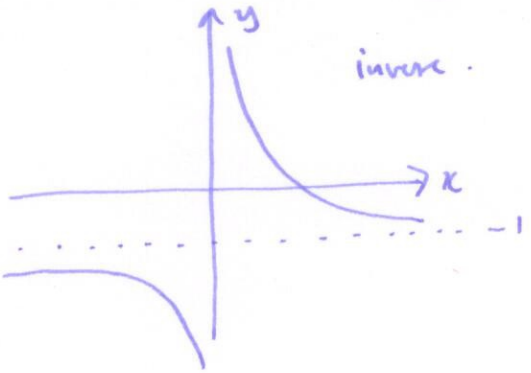
$y = \sqrt{2x-1}$ $\quad y^2 = 2x-1$ $\quad y^2+1 = 2x$ $\quad x = \frac{1}{2}(y^2+1)$

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

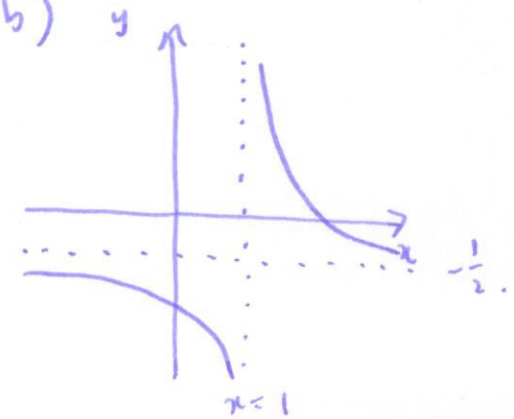
(2) Sketch the raphs of the functions and their inverse functions.

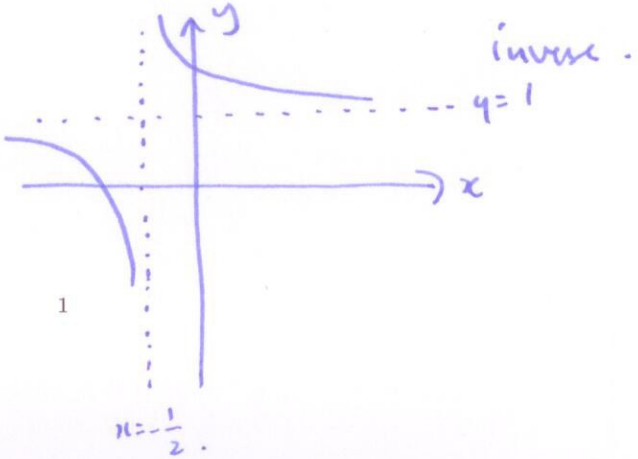
a)




b)



c)