Classwork 8

College Algebra and Trigonometry, MTH 123, Section 3260, Fall 2011

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Name: Solution

1. Find the inverse of the function $f(x) = \sqrt{3-4x}$.

$y = \sqrt{3-4x}$

$y^2 = 3-4x$

$4x = 3-y^2$

$x = \frac{3-y^2}{4}$

Switch $x \& y$

$y = \frac{3-x^2}{4}$

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

2. Find the inverse of the function $f(x) = \frac{1}{x-1}$.

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

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

$x = \frac{1}{y} + 1$

$y = \frac{1}{x} + 1$

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

3. Find the inverse of the function $f(x) = \frac{1+3x}{5-2x}$.

$y = \frac{1+3x}{5-2x}$

$5y - 2xy = 1+3x$

$5y - 1 = 2xy + 3x$

$5y - 1 = x(2y+3)$

$\frac{5y-1}{2y+3} = x$

$y = \frac{5x-1}{2x+3}$

$f^{-1}(x) = \frac{5x-1}{2x+3}$