Integrated Math 3
Unit 7: Modeling Rational Representations
7.4 Worksheet

Name: Worked Out Solutions

Date:_____ Period:_____

Inverses of Rational Functions

Determine the inverse of each of the following functions:

1. $f(x) = \frac{5}{x-4}$

$y = \frac{5}{x-4}$

$(y-4)x = \frac{5}{(y-4)}(y-4)$

$(y-4)\frac{x}{x} = \frac{5}{x}$

$y - 4 = \frac{5}{x} + 4$
$+4$

$f^{-1}(x) = \frac{5}{x} + 4$ or $= \frac{4x+5}{x}$

2. $g(x) = \frac{x-7}{2x}$

$y = \frac{x-7}{2x}$

$2y \cdot x = \frac{(y-7)}{2y} \cdot 2y$

$2yx = y - 7$

$2yx - y = -7$

$y(2x-1) = -7$

$g^{-1}(x) = \frac{-7}{2x-1}$

3. $h(x) = \frac{3x+1}{x-1}$

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

$yx - x = 3y + 1$

$yx - 3y = x + 1$

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

$h^{-1}(x) = \frac{x+1}{x-3}$

4. $k(x) = \frac{x+4}{2x-3}$

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

$2yx - 3x = y + 4$

$2yx - y = 3x + 4$

$y(2x-1) = 3x+4$

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