57

45

61

$f(x) = 3x - 2 \qquad g(x) = \frac{x+2}{3}$

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

$= x + 2 - 2$

$= x$

$g(f(x)) = \frac{(3x-2)+2}{3}$

$= \frac{3x}{3}$

$= x$

61) $f(x) = \frac{x+1}{x}$ $\quad g(x) = \frac{1}{x-1}$

$f(g(x)) = f\left(\frac{1}{x-1}\right)$

$= \frac{\frac{1}{x-1} + 1}{\qquad\qquad}$

$= \left(\frac{1}{x-1} + 1\right) \div \left(\frac{1}{x-1} + 1\right) \cdot \frac{1}{x-1}$

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

$f \circ g) \quad 1 + x - 1$

$= x$

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$(g \circ f)(x) = g(f(x))$

$g = \frac{1}{x-1}$ $\quad f = \frac{x+1}{x}$

$$\frac{1}{\frac{x+1}{x} - \frac{1}{1}}$$

common denom combine

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

$= 1 \div \frac{1}{x}$

$= 1 \cdot \frac{x}{1} = x$

$\frac{2}{5} - \frac{1}{6}$

$\frac{2(6) - 1(5)}{30}$

$2 + \frac{1}{2} = \frac{5}{2} = 3.5$

45 $f(x) = \frac{2x-3}{x+1}$

f^{-1}

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

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

$x(y+1) = 2y - 3$ solve for y

$xy + x = 2y - 3$

$-x \quad\quad -2y$

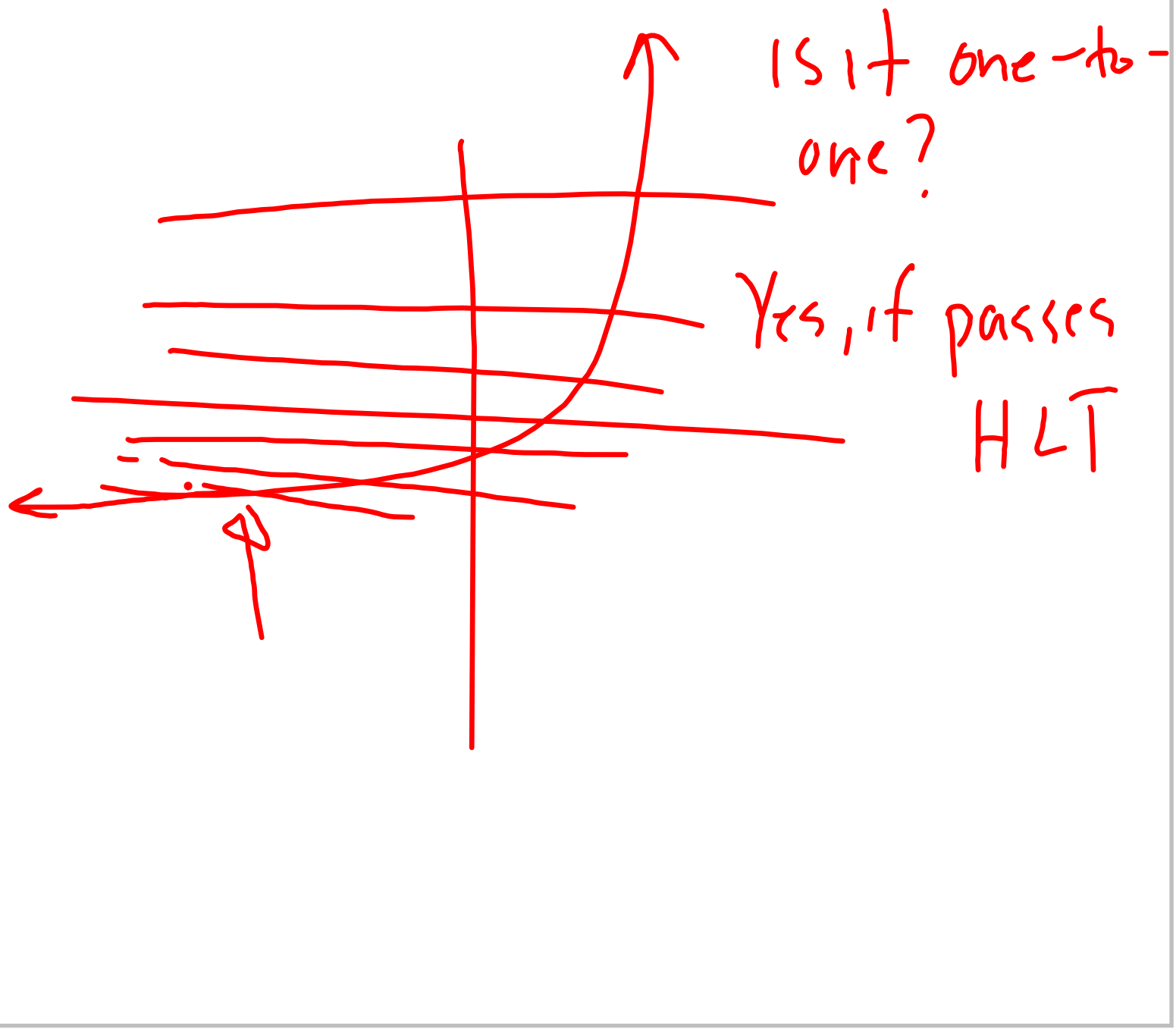
$y =$

$xy - 2y = -3 - x$

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

$\frac{(x-2)}{}$

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


Is it one-to-one?
Yes, if passes HLT