Given the definitions of $f(x)$ and $g(x)$, find

(1) $f(3), g(0)$

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

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

$f(x)$ $g(x)$	$f(3), g(0)$	$(f \circ g)(x)$	$(g \circ f)(x)$
$f(x) = \frac{3}{x} - 1$ $g(x) = x + \frac{1}{x-2}$	$f(3) = 0$ $g(0) = -\frac{1}{2}$	$\frac{-x^2+5x-7}{x^2-2x+1}$	$\frac{(2x-3)^2}{3x(1-x)}$
$f(x) = \sqrt{x^2-2}$ $g(x) = x+3$	$f(3) = \sqrt{7}$ $g(0) = 3$	$\sqrt{x^2+6x+7}$	$\sqrt{x^2-2}+3$
$f(x) = \frac{-1}{4-\frac{3}{x}}$ $g(x) = \frac{3x}{4x-1}$	$f(3) = -\frac{1}{3}$ $g(0) = 0$	$-x$	$\frac{3x}{8x-3}$
$f(x) = 1 - \frac{1}{1+\frac{1}{x}}$ $g(x) = \frac{2-x}{x}$	$f(3) = \frac{1}{4}$ g(0) does not exist.	$\frac{x}{2}$	$2x+1$
$f(x) = \frac{2+x}{x-3}$ $g(x) = \frac{3x+2}{x-1}$	f(3) does not exist. $g(0) = -2$	x	x
$f(x) = \frac{x-1}{x}$ $g(x) = \sqrt{x+1}$	$f(3) = \frac{2}{3}$ $g(0) = 1$	$1 - \frac{\sqrt{x+1}}{x+1}$	$\frac{\sqrt{2x^2-x}}{x}$
$f(x) = 2x-3$ $g(x) = \frac{(x-1)^2}{2}$	$f(3) = 3$ $g(0) = \frac{1}{2}$	x^2-2x-2	$2(x-2)^2$
$f(x) = \frac{3+\sqrt{x}}{\sqrt{x}}$ $g(x) = \frac{4}{(x-1)^2}$	$f(3) = \sqrt{3}+1$ $g(0) = 4$	$\frac{3x-1}{2}$	$\frac{4x}{9}$