

(1) [7 points] Let $f(x) = \frac{3}{x-1}$ and $g(x) = \frac{2}{x}$.

- (i) Determine and simplify $f \circ g$.
- (ii) Determine the domain of $f \circ g$.

(2) [8 points] Let $f(x) = \frac{2x}{3x-1}$. Determine $f^{-1}(x)$ and use your result to find both the domain and range of $f(x)$.