1. (5 points) Let $f(x) = x^2 + x$, $g(x) = |x|$, and 

$$
h(x) = \begin{cases} 
-1 & \text{if } x < 0 \\
1 & \text{if } x \geq 0 
\end{cases}.
$$

Give the multi-part rule for the function $y = f(x) + g(x) + h(x)$.

2. (5 points) Let $f(x) = \frac{2x}{x-4}$ and $g(x) = \frac{4x}{x-2}$. Determine if $g(x)$ is the inverse of $f(x)$. (Show your work.)