Suppose that $\{W_t\}_{t \geq 0}$ is standard Brownian motion.

(a) Let $0 < t_1 < t_2$. Find the probability density function of W_{t_1} conditional on $W_{t_2} = x_2$.

(b) Let $0 < t_1 < t_2 < t_3$. Find the probability density function of W_{t_2} conditional on $W_{t_1} = x_1$ and $W_{t_3} = x_3$.