Your Name	
Your UnetID	

Equations:

Independence: $P(x|y) = P(x)$

Conditional independence:

$\forall x, y, z \quad P(x|y,z) = P(x|z) \Longrightarrow X \perp Y \mid Z$ && $\forall x, y, z \quad P(x,y|z) = P(x|z) \cdot P(y|z)$

Product rule: $P(A,B) = P(A|B) \cdot P(B)$ *extend to more variables*

$$P(x_1, x_2, x_3) = P(x_3|x_2, x_1) \cdot P(x_2, x_2) = P(x_3|x_2, x_1) \cdot P(x_2|x_1) \cdot P(x_1)$$

Probability Exercises:

Given the three variable product rule, and the definition of conditional independence, write $P(x_1, x_2, x_3)$, given that $P(x_1|x_2, x_3)$	
Calculate P(sun|summer, hot)	
Calculate $\boldsymbol{P(B,\ e,\ a, j,\ m)}$	