

## Conditional Probability: Slam Dunk 2

Name:	Class:	Date:
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A coin is tossed twice. What is the probability that it shows heads both times, given that it shows heads at least one time?

$$S = \{(H,H), (H,T), (T,H), (T,T)\}; \quad |S| = 4$$

Event A: The coin shows heads at least one time.

$$\text{Therefore, } A = \{(H,H), (H,T), (T,H)\}; \quad |A| = 3$$

Event B: The coin shows heads both times.

$$\text{Therefore, } B = \{(H,H)\}.$$

$$\text{Therefore } B \cap A = \{(H,H)\}; \quad |A \cap B| = 1$$

$$P(A) =$$

$$P(B \cap A) =$$

Therefore,  $P(\text{the coin shows heads both times, given that the coin shows heads at least one time}) = P(B, \text{ given that } A)$

$$= \frac{P(B \cap A)}{P(A)} =$$