

## Conditional Probability: Slam Dunk 5

Name:	Class:	Date:
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A card is picked at random from a standard deck of 52 playing cards. What is the probability that it is a king, given that it is a red card?

$S = \{\text{Ace of Hearts, 2 of Hearts, ..., Queen of Spades, King of Spades}\}; \quad |S| = 52$

Event A: The card picked is a red card.

Therefore  $A = \{\text{Ace of Hearts, 2 of Hearts, ..., Queen of Diamonds, King of Diamonds}\}; \quad |A| = 26$

Event B: The card picked is a king.

Therefore  $B = \{\text{King of Hearts, King of Diamonds, King of Clubs, King of Spades}\}$

Therefore  $B \cap A = \{\text{King of Hearts, King of Diamonds}\}; \quad |B \cap A| = 2$

$P(A) =$

$P(B \cap A) =$

Therefore,  $P(\text{the card picked is a king, given that the card picked is a red card})$   
 $= P(B, \text{ given that } A)$

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