# Conditional Probability with Playing Cards Worksheets

### ANSWER / CASE 1

One card is drawn uniformly from a standard 52-card deck with no jokers. Given that it is a red card, what is the probability it is a heart? Face cards are J, Q and K; aces are not numbered 2 through 10.

| Suit | Cards |
|---|---|
| Hearts | 13 |
| Diamonds | 13 |
| Clubs | 13 |
| Spades | 13 |

ANSWER: 1/2
1. The condition restricts the sample space to 26 cards.
2. 13 of those satisfy the event, so the conditional probability is 13/26.

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### ANSWER / CASE 2

One card is drawn uniformly from a standard 52-card deck with no jokers. Given that it is a face card, what is the probability it is a king? Face cards are J, Q and K; aces are not numbered 2 through 10.

| Suit | Cards |
|---|---|
| Hearts | 13 |
| Diamonds | 13 |
| Clubs | 13 |
| Spades | 13 |

ANSWER: 1/3
1. The condition restricts the sample space to 12 cards.
2. 4 of those satisfy the event, so the conditional probability is 4/12.

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### ANSWER / CASE 3

One card is drawn uniformly from a standard 52-card deck with no jokers. Given that it is a black card, what is the probability it is a spade? Face cards are J, Q and K; aces are not numbered 2 through 10.

| Suit | Cards |
|---|---|
| Hearts | 13 |
| Diamonds | 13 |
| Clubs | 13 |
| Spades | 13 |

ANSWER: 1/2
1. The condition restricts the sample space to 26 cards.
2. 13 of those satisfy the event, so the conditional probability is 13/26.

# Conditional Probability with Playing Cards Worksheets

### ANSWER / CASE 4

One card is drawn uniformly from a standard 52-card deck with no jokers. Given that it is a card numbered 2 through 10, what is the probability it is a seven? Face cards are J, Q and K; aces are not numbered 2 through 10.

| Suit | Cards |
|---|---|
| Hearts | 13 |
| Diamonds | 13 |
| Clubs | 13 |
| Spades | 13 |

ANSWER: 1/9
1. The condition restricts the sample space to 36 cards.
2. 4 of those satisfy the event, so the conditional probability is 4/36.