

Answer: $\frac{1}{2}$

Let \mathcal{A} be the event that the first card is a heart, and let \mathcal{B} be the event that the second card is a heart. Then \mathcal{A} and \mathcal{B} are dependent events, and we have

$$P(\mathcal{A}) = \frac{13}{52} = \frac{1}{4}, \quad P(\mathcal{B}) = \frac{13}{52} = \frac{1}{4},$$

$$P(\mathcal{A} \cap \mathcal{B}) = \frac{12}{52} = \frac{3}{13}.$$

$$P(\mathcal{A} \cup \mathcal{B}) = P(\mathcal{A}) + P(\mathcal{B}) - P(\mathcal{A} \cap \mathcal{B}) = \frac{1}{4} + \frac{1}{4} - \frac{3}{13} = \frac{1}{2}.$$