

A card is drawn at random from a well shuffled deck of 52 cards. What is the theoretical probability of drawing a face card or a spade?

Solution.

Theoretical probability is a likelihood that an event will happen. We can find the theoretical probability of an event using the following ratio:

$$P(E) = \frac{\text{number of favorable outcomes}}{\text{total number of possible outcomes}}$$

So we have 12 face cards in the deck:

$$P_f(E) = \frac{12}{52} = \frac{3}{13}$$

We have 13 spades in the deck. So

$$P_s(E) = \frac{13}{52} = \frac{1}{4}$$

Answer:

$$P_f(E) = \frac{3}{13}; \quad P_s(E) = \frac{1}{4}$$