

PROBABILITIES. EX-3

1) Five cards are dealt. what is the probability of getting 4 Aces?

Solution

$$\frac{4}{52} \times \frac{3}{51} \times \frac{2}{50} \times \frac{1}{49} \times \frac{48}{48} = \frac{24}{6,497,400}$$

$$= .000\ 003\ 694$$

A A A ? A
 A A ? A A
 A ? A A A
 ? A A A A

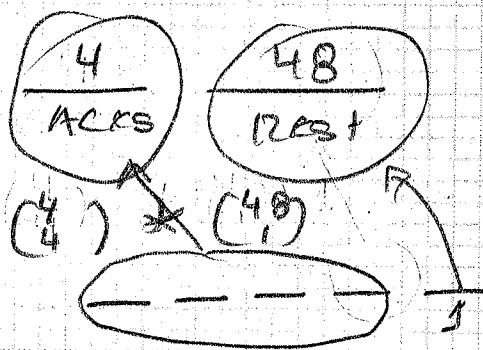
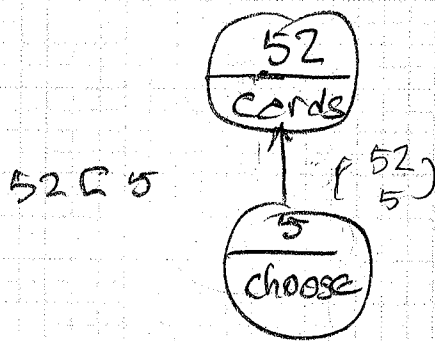
Answer: $.000\ 003\ 694 \times 5$

$$= .000\ 018\ 469$$

OR $P = \frac{n(\text{Event A})}{n(S)} =$

$$n(S) = \binom{52}{5}$$

$$n(\text{Event A}) = \binom{4}{4} \binom{48}{1}$$



$$P = \frac{\binom{4}{4} \binom{48}{1}}{\binom{52}{5}} = .000\ 018\ 469$$

2) Five cards are dealt. What is the probability of getting 4 of a kind?

Solution

$$P(4 \text{ Aces}) = P(4 \text{ Ones}) = \dots = P(4 \text{ Kings}) = .000\ 018\ 469$$

$$P(4 \text{ of a kind}) = .000\ 018\ 469 * 13 = .000\ 240\ 096$$