

## Probability Test Formulas

**Probability of an event,  $E$ :**

$$p(E) = \frac{n(E)}{n(S)}$$

**Odds FOR an event,  $E$ :**

$$o(E) = n(E) : n(E')$$

If  $o(E) = a : b$ , then  $p(E) = \frac{a}{a+b}$ .

**Cardinal number rules for probability:**

$$p(E) + p(E') = 1$$

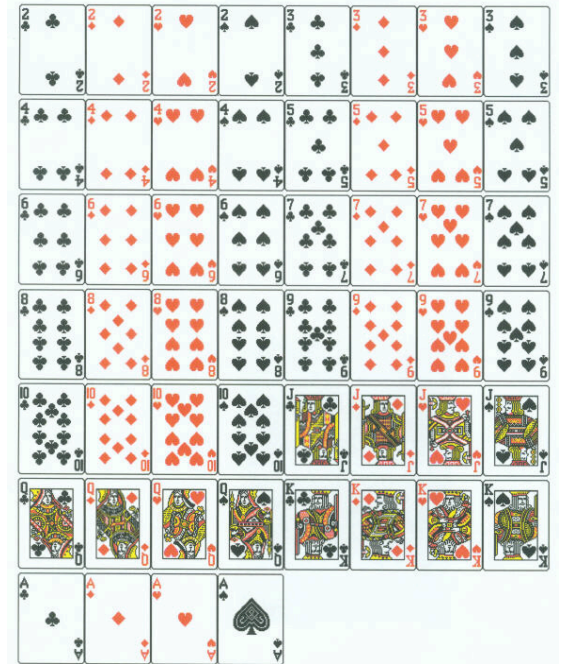
$$p(E \cup F) = p(E) + p(F) - p(E \cap F)$$

**Conditional Probability:**

$$p(A | B) = \frac{n(A \cap B)}{n(B)}$$

**Product Rule:**

$$p(A \cap B) = p(A | B) \cdot p(B)$$



**Sample Space of Rolling a Pair of Dice**

Sum ↓	(1, 1)	(1, 2)	(1, 3)	(1, 4)	(1, 5)	(1, 6)
2	(2, 1)	(2, 2)	(2, 3)	(2, 4)	(2, 5)	(2, 6)
3	(3, 1)	(3, 2)	(3, 3)	(3, 4)	(3, 5)	(3, 6)
4	(4, 1)	(4, 2)	(4, 3)	(4, 4)	(4, 5)	(4, 6)
5	(5, 1)	(5, 2)	(5, 3)	(5, 4)	(5, 5)	(5, 6)
6	(6, 1)	(6, 2)	(6, 3)	(6, 4)	(6, 5)	(6, 6)
7	8	9	10	11	12	