

Independent & Dependent Events

Independent - 2 or more events that have NO affect on each other.

ex) 2 Separate Simple Events (Compound Events)

Probability OR with Replacement

Dependent - 2 or more events that affect each other

ex) Probability Without Replacement

Mar 22-1:48 PM

Independent

① Probability of 3 heads on a coin

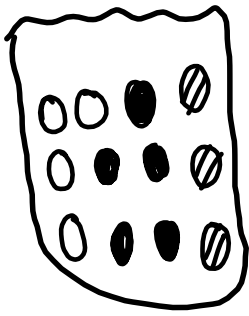
$$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$$

② Rolling a # greater than 2 and flipping a head

$$\frac{4}{6} \cdot \frac{1}{2} = \frac{1}{3}$$

Mar 25-10:06 AM

Independent (With Replacement)



12 marbles

B = black
W = White
S = Striped

① $P(\text{B then W})$

$$\frac{5}{12} \cdot \frac{4}{12} = \frac{5}{36}$$

② $P(2S)$

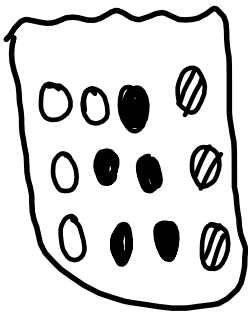
$$\frac{3}{12} \cdot \frac{3}{12} = \frac{1}{16}$$

③ $P(B, B, W)$

$$\frac{5}{12} \cdot \frac{5}{12} \cdot \frac{4}{12} = \frac{25}{432}$$

Mar 25-10:10 AM

Dependent (Without Replacement)



12 marbles

B = black
W = White
S = Striped

① $P(\text{B then W})$

$$\frac{5}{12} \cdot \frac{4}{11} = \frac{5}{33}$$

② $P(2S)$

$$\frac{3}{12} \cdot \frac{2}{11} = \frac{1}{22}$$

③ $P(B, B, W)$

$$\frac{5}{12} \cdot \frac{4}{11} \cdot \frac{4}{10} = \frac{2}{33}$$

④ $P(4W)$

$$\frac{4}{12} \cdot \frac{3}{11} \cdot \frac{2}{10} \cdot \frac{1}{9} = \frac{1}{495}$$

⑤ $P(4S)$

$$\frac{3}{12} \cdot \frac{2}{11} \cdot \frac{1}{10} \cdot \frac{0}{9} = 0$$

impossible

Mar 25-10:18 AM