

11.4C Independent and Dependent Events

Mar 8-6:26 AM

Adding ("or") 1 draw	no overlap $P(\text{blue or red})$	overlap $P(\text{adult female})$ $P(a) + P(f) - (a/f)$
Multiply ("and") 2+ draws	w/ replacement	w/o replacement

Mar 10-7:44 AM

4-R
1-W
1-Y

A six-sided cube is labeled with the numbers 1, 2, 2, 3, 3, and 3. Four sides are colored red, one side is white, and one side is yellow.

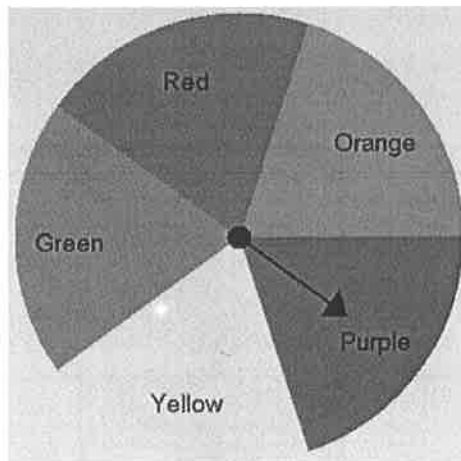
1. Find the probability of rolling a 2, then a 2.

$$P(2) \cdot P(2) \\ \frac{2}{6} \cdot \frac{2}{6} = \frac{4}{36} = \boxed{\frac{1}{9}}$$

2. Find the probability of rolling red, then white, then yellow.

$$P(R) \cdot P(W) \cdot P(Y) \\ \frac{4}{6} \cdot \frac{1}{6} \cdot \frac{1}{6} = \frac{4}{216} = \boxed{\frac{1}{54}}$$

Mar 10-7:44 AM



The spinner to the left is equally likely to land on any of the colored sections. If you spin the spinner 5 times, what is the probability that it will land on Red, Green, Orange, Red, and Purple in that order?

$$\frac{1}{5} \cdot \frac{1}{5} \cdot \frac{1}{5} \cdot \frac{1}{5} \cdot \frac{1}{5} = \boxed{\frac{1}{3125}}$$

Mar 10-7:44 AM

**Two cards are drawn from a deck of 52.
Find the probability.**

What is the probability that you will select two aces given that the first card is replaced?

$$\frac{4}{52} \cdot \frac{4}{52} = \frac{1}{13} \cdot \frac{1}{13} = \frac{1}{169}$$

Ace Ace

What is the probability of selecting a face card and then a 7 when the first card is not replaced?

$$\frac{12}{52} \cdot \frac{4}{51} = \frac{4}{221}$$

Mar 10-8:05 AM

The table shows domestic migration from 1995 to 2000. A person is selected randomly. What is the probability that someone selected is an emigrant and is from the midwest?

$$\frac{2951}{23311}$$

Domestic Migration by Region (thousands)		
Region	Immigrants	Emigrants
Northeast	1537	2808
Midwest	2410	2951
South	5042	3243
West	2666	2654

4345
5361
8285
5320
11,655 11,656 23,311

Mar 10-8:19 AM

If 2 coins are tossed, one spinner is spun, and 1 card is drawn from a deck. What is the probability of 2 heads, a four on the spinner, and the card is a spade?

1st toss 2nd toss

H H
 T
 T H
 T

$\frac{1}{4}$

$\frac{3}{8}$

$\frac{1}{4} = \frac{3}{128}$

$= \frac{3}{128}$

Mar 10-8:19 AM

A bag contains 5 red, 3 green, 4 blue, and 8 yellow marbles.

= 20 total

Find the probability of randomly selecting a green marble, and then a yellow marble if the first marble is replaced.

$P(G) \cdot P(Y) = \frac{3}{20} \cdot \frac{8}{20} = \frac{3}{50}$

What if the first marble was not replaced?

$\frac{3}{20} \cdot \frac{8}{19} = \frac{6}{95}$

A sock drawer contains 5 rolled - up pairs of each color of socks, white (1), green (2), and blue (2). What is the probability of selecting a pair of blue socks, replacing it, and then randomly selecting a pair of white socks?

$$P(B) \cdot P(W)$$

$$\frac{2}{5} \cdot \frac{1}{5} = \left(\frac{2}{25}\right)$$

Mar 3-1:08 PM

A bag contains 10 beads - 2 black, 3 white, and 5 red. A bead is selected at random. Find the indicated probability.

P(white bead, replacing it, then red bead)

$$P(W) \cdot P(R)$$

$$\frac{3}{10} \cdot \frac{5}{10} = \left(\frac{3}{20}\right)$$

P(white bead, no replacement, then red bead)

$$P(W) \cdot P(R - \text{w/out replace})$$

$$\frac{3}{10} \cdot \frac{5}{9} = \frac{15}{90} = \left(\frac{1}{6}\right)$$

P(3 nonred beads without replacement)

$$P(\text{not red}) \cdot P(\text{not red}) \cdot P(\text{not red})$$

$$\frac{5}{10} \cdot \frac{5}{9} \cdot \frac{5}{8} = \frac{125}{720} = \left(\frac{25}{144}\right)$$

Mar 3-1:20 PM

Homework

WS 11.4C Independent and Dependent Events

Mar 8-8:02 AM