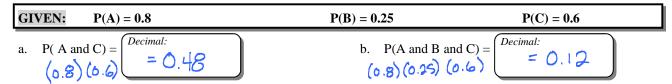
INDEPENDENT PROBABILITY

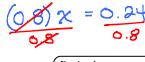
Determine the following probabilities if each of the following are **independent**.



P(Rolling a 4 on a standard die and B) = (1/6) (0.25)

.0416

Find the P(D) assuming A and D are independent events, and given P(A and D) = 0.24



Decimal:



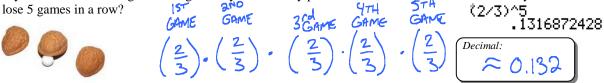
P(Rolling a 2 on a standard die and picking a card with a "7" on it from a standard deck of cards) =

If you were to roll two standard six-sided dice, what is the probability that both land on a 5 or greater?

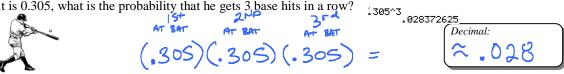


If your chances of losing the shell game if you randomly pick is 2 in 3. What are the chances that you would lose 5 games in a row?

| ST | STH | STH | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3)^5 | (2/3



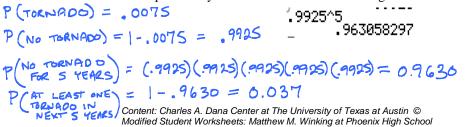
Assuming a baseball Freddie has a batting average of 0.305. If we assume the probability of him getting a base hit is 0.305, what is the probability that he gets 3 base hits in a row?



A weather forecaster suggests the probability of rain on Saturday is 30% and on Sunday there is a 60% chance of rain. If the forecaster's probabilities are correct what is the probability of no rain all weekend?



** Nancy estimates that the probability that a tornado will strike with in the city limits on any given year is 0.75%. What is the probability of at least one tornado touching down in the next 5 years? (must use complements)



Decimal:

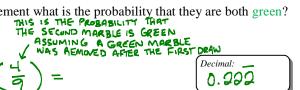
.036941703

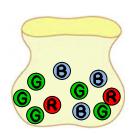
SECTION 2-2 p.18



DEPENDENT PROBABILITIES

- Consider an opaque bag with 5 green marbles, 3 blue marbles, and 2 red marbles.
 - If two marbles are drawn without replacement what is the probability that they are both green? PROBABILITY THAT





If two marbles are drawn without replacement what is the probability that the first draw is a red marble and the second



Decimal:

***If two marbles are drawn without replacement what is the probability that the both marbles are the same color?

$$P\begin{pmatrix} B_{OTH} & MARBIES \\ MARE & THE \\ SAME & COLOR \end{pmatrix} = \begin{pmatrix} \frac{5}{10} \end{pmatrix} \begin{pmatrix} \frac{4}{9} \\ \frac{7}{10} \end{pmatrix} + \begin{pmatrix} \frac{3}{10} \end{pmatrix} \begin{pmatrix} \frac{2}{9} \\ \frac{7}{10} \end{pmatrix} + \begin{pmatrix} \frac{2}{10} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{7}{10} \end{pmatrix} = \begin{pmatrix} \frac{5}{10} \end{pmatrix} (4/9) + (3/1) \begin{pmatrix} \frac{1}{9} \\ \frac{7}{10} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{7}{10} \end{pmatrix} = \begin{pmatrix} \frac{5}{10} \end{pmatrix} \begin{pmatrix} \frac{4}{9} \\ \frac{7}{10} \end{pmatrix} + \begin{pmatrix} \frac{2}{10} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{7}{10} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{7}{10} \end{pmatrix} = \begin{pmatrix} \frac{1}{9} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{7}{10} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{1}{9} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{1}{9} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{1}{9} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{1}{9} \end{pmatrix} \begin{pmatrix} \frac{1}{9} \\ \frac{1}{9} \end{pmatrix} \begin{pmatrix}$$

- Consider that 3 consecutive cards are drawn without replacement from a shuffled deck of cards (Dependent probability)
 - A. What is the probability that the first two cards drawn are face cards?

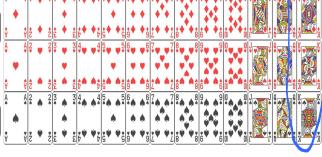
$$\left(\frac{12}{52}\right)\left(\frac{11}{51}\right) = (12/52)(11/51)$$

.0497737557



What is the probability that the all three cards are hearts?





What is the probability that all three cards are a King?

$$\binom{4}{52}\binom{3}{51}\binom{2}{50} = \binom{4/52}{3/51}(3/51)(2/5)$$
1.809954751E-4

Ÿ

D. What is the probability that all three cards are the same (BONUS)?

