

Showdown – “Probability / Counting Methods”

<p>A. You have a bag containing three red, seven green, and six blue pens. You choose two pens at random. Find each probability.</p> <ol style="list-style-type: none"> $P(\text{blue and blue})$ with replacing $P(\text{red then green})$ without replacing $P(\text{red and blue})$ with replacing 	<p>B.</p> <ol style="list-style-type: none"> In how many different ways can you choose three CDs from a selection of 10 CDs? You have enough money for three extra toppings on a pizza. If there are nine possible toppings, how many choices do you have?
<p>C.</p> <ol style="list-style-type: none"> A coin is tossed four times. What is the probability of getting 4 heads in a row? Is flipping a coin an independent or dependent event. Explain. 	<p>D.</p> <ol style="list-style-type: none"> You have six sizes of envelopes and three different kinds of stamps. How many different combinations of envelopes and a stamp are possible?
<p>E. Suppose you roll a number cube. Find each probability.</p> <ol style="list-style-type: none"> $P(\text{even})$ $P(7 \text{ or } 3)$ $P(\text{not } 3)$ $P(4 \text{ or } 2)$ 	<p>F. Six roles are being cast for a school play. Fifteen students show up for auditions.</p> <ol style="list-style-type: none"> How many different casts are possible?
<p>G.</p> <ol style="list-style-type: none"> Is a 6-letter password or 6-digit password harder for someone to guess? EXPLAIN WHY. 	<p>H.</p> <ol style="list-style-type: none"> Think of an example of an event with a probability of zero. Explain what it means to have a probability of zero. Patrice has a 40% chance of making a free throw. What is the probability that she will miss the free throw?

I.

S • O • U • T • H • W • E • S • T

You *do not* replace the letter before the second pick. Find each probability.

1. $P(T \text{ then } E)$
2. $P(\text{Vowel and then a } S)$
3. $P(T \text{ or } U, \text{ and then } O)$
4. $P(T \text{ each time})$

J.

You just won a free trip and have the option of flying or taking a peaceful train ride to your destination. You can choose to travel to Omaha, Phoenix, or New York. Create a tree diagram to determine how many different travel arrangements that can be made.

K.

Explain the difference between theoretical and experimental probability.

L.

Suppose you draw two balls at random from a bag containing seven pink, four white, three yellow, and two striped balls. Find each probability.

1. $P(\text{striped then striped})$ with replacing
2. $P(\text{striped then striped})$ without replacing
3. $P(\text{pink then white})$ with replacing
4. $P(\text{pink then white})$ without replacing