Simple Probability EXAMPLES

1. A new restaurant has opened and they offer lunch combos for $5.00. With the combo meal you get one sandwich, one side, and one drink. The choices are below:

Sandwiches	Sides	Drinks
Chicken Salad	Chips	Lemonade
Turkey	Sweet Potato Fries	Water
Grilled Cheese	Fruit Cup	
	Carrot Sticks	

How many possible meal combos are there?

Sandwiches sides drinks

3 · 4 · 2 = 24 possible combos

2. Suppose you use six different letters to make a computer password. Find the number of possible six-letter passwords.

$\underline{26} \cdot \underline{25} \cdot \underline{24} \cdot \underline{23} \cdot \underline{22} \cdot \underline{21} = 165{,}765{,}600$ different passwords

(26: 1st letter possibilities; 25: 2nd letter; 24: 3rd letter; 23: 4th letter; 22: 5th letter; 21: 6th letter)

3. In Pennsylvania, a regular license plate has three letters followed by 4 numbers. How many different combinations of license plates does Pennsylvania have?

$\underline{26} \cdot \underline{26} \cdot \underline{26} \cdot \underline{10} \cdot \underline{10} \cdot \underline{10} \cdot \underline{10} = 175{,}760{,}000$ possible license plates

(1st letter, 2nd letter, 3rd letter, 1st #, 2nd #, 3rd #, 4th #; # = 10 digits 0–9)

4. A survey at a hospital showed the most popular names for baby girls are:
   Emily, Haley, Kayla, and Samantha
   The most popular middle names for baby girls are:
   Anne, Elizabeth, and Marie.
   a. How many possible names can be generated using the first and middle names from the list of popular names?

First name · Middle Name

4 · 3 = 12 possible names

   b. What is the probability that a baby girl will be named Emily Elizabeth if her parents choose form the most popular names?

P(Emily Elizabeth) = $\frac{1}{12}$ ← 1 name / ← 12 possible

5. One hundred twenty randomly selected students at Rustin High School were asked to name their favorite sport. The results are shown in the table. Find the experimental probability that a student selected at random makes the given response.

Favorite Sport Survey

Sport	Number of Responses
Basketball	30
Baseball	22
Football	34
Soccer	20
Other	14

1. P(basketball)
$\frac{30}{120} = \frac{1}{4}$
2. P(soccer)
$\frac{20}{120} = \frac{1}{6}$
3. P(baseball)
$\frac{22}{120} = \frac{11}{60}$
4. P(football)
$\frac{34}{120} = \frac{17}{60}$
5. P(not basketball or baseball)
$\frac{68}{120} = \frac{17}{30}$

6. A meteorologist says that the probability of rain today is 35%. What is the probability that it will not rain?

$100\% - 35\% = 65\%$ chance it will not rain

7. Hank usually makes 11 out of every 20 of his free throws. What is the probability that he will miss his next free throw?

$1 - \frac{11}{20} = \frac{9}{20}$ chance he will miss