**AP Stat 5.2 Notes/Examples Name:**

**Myths and Common Misinterpretations of Probabilities:**

* Short-run regularity
	+ Remember that the patterns of probability apply to the long run.
* The Law of Averages
	+ Usually, random events are independent of previous events. For instance just because a fair coin has been flipped heads six times in a row, it is NOT more likely that the seventh flip will be tails. This is similar to what’s called the *Gambler’s Fallacy*.

**Examples:**

1. The table below gives the probability of each color for a randomly chosen milk chocolate M&M:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Color: | Brown | Red | Yellow | Green | Orange | Blue |
| Probability: | 0.13 | 0.13 | 0.14 | 0.16 | 0.20 | ? |

1. What is the probability of selecting a blue M&M?
2. What is the probability of selecting a red, yellow, or orange M&M?
3. The chances Deborah gets promoted is 0.7. The chances Matthew gets promoted is 0.5. The chances they both get promoted is 0.3. What is the probability that at least one of them is promoted?
4. Suppose Freddy meets this girl at a party and manages to impress her enough to score her phone number. But when he gets home, he realizes that the last two digits of the phone number were smudged beyond recognition because his hands were ridiculously sweaty. What is the probability that Freddy guesses the last two digits on the first try?