Accelerated Geometry Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Conditional Probability Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

We already know what it means if two events are **independent**: the probability of one event happening is not at all influenced by the fact that the other has or has not occurred.

Using symbols, if events A and B are independent, we can say that

P(A|B) = \_\_\_\_\_\_\_\_\_\_\_ and P(B|A) = \_\_\_\_\_\_\_\_\_\_\_\_

We also know that **if events A and B are independent**, P(A and B) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

But sometimes the probability of one event happening *does* depend on another event happening. We call these events \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and this type of probability is called

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**If event A and event B are dependent events**, then P(A and B) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

We can rearrange this formula in order to isolate P(B|A) like this:

Examples

1. You are at the grocery store. From past experience, there is a 50% chance that you buy apples. The probability that you buy apples and bananas is 35%. What is the probability that you buy bananas given you are going to buy apples?

2. The probability that a student takes geometry and French is 0.064. The probability that a student takes French is 0.45. What is the probability that a student takes geometry if the student takes French?

3. A spinner numbered 1 through 12 is spun. Find the probability that the number spun is an 11 given that the number spun is an odd number.