Notes - Dependent Probability

Dependent Probability

Independent vs. Dependent

INDEPENDENT	DEPENDENT
A teacher calls on a student by drawing a popsicle stick. After the student has answered the question, **their name goes back in the cup with the rest of the students.**	A teacher calls on a student by drawing a popsile stick. After the student has answered the question, **their name stays out of the cup until everyone else has been called on.**

Independent vs. Dependent

INDEPENDENT	DEPENDENT
• pick something, then return it	• pick something, keep it out
• denominator stays the same with each pick	• denominator decreases after each pick
• item has the same probability of being picked each time	• item has a better probability of being picked each time
• There can be multiple picks as long as one item is picked at a time	• there can be multiple picks as long as one item is picked at a time
Key Words: replaced, returned, put back	**Key Words:** keep it, do not return

Example 1

A card is drawn from a deck of eight cards with letters A, B, C, D, E, F, G, and H. The card is <u>not</u> replaced and a second card is drawn. What is the probability of getting a B <u>and</u> an F card?

Example 2

What is the probability of drawing a Jack from a deck of cads, putting it aside, and then drawing another jack?

Example 3

You have tiles numbered 1 through 9 in a bag. What is the probability of drawing the number 7, putting it aside, and then drawing a number greater than 5?

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Example 4

Mr. Parietti needs two students to help him with a science demonstration for his class of 18 girls and 12 boys. He randomly chooses one student who comes to the front of the room. He then chooses a second student from those still seated. What is the probability that both students chosen are girls?

Example 5

In a shipment of 20 computers, 3 are defective. Three computers are randomly selected and tested. What is the probability that all three are defective if the first and second ones are not replaced after being tested?

Example 6

5 out of 20 students got an A on the test. What is the probability that three randomly chosen students all got A's?

Example 7

You pull a marble from a bag with 20 red, 20 white, and 10 green marbles. You hold onto it and then pull another marble. What is the probability of pulling a red marble and then pulling a green marble?

A jar contains 6 blue, 3 red, 5 green, and 2 yellow candies.

Ex. 8: P(a red then green) if <u>not</u> replaced.

Ex. 9: P(two blue candies) if <u>not</u> replaced.

Ex. 10: P(three greens) if <u>not</u> replaced.