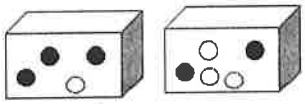
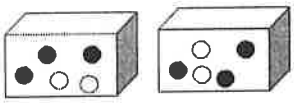
Independent vs. Dependent

Are the two events **D**ependent or **I**ndependent?

1) Picking a box then picking a marble from the box.



2) Picking a box then picking a marble from that box.



3) Picking a marble from the jar, <u>putting it back</u>, then picking another marble.

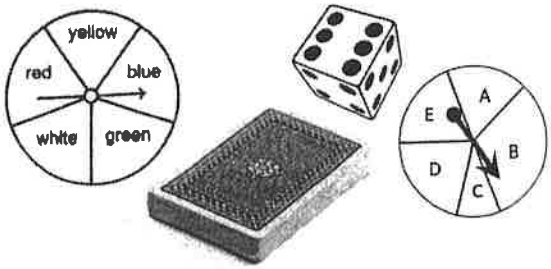
4) Picking two marbles from the jar <u>without</u> putting the first one back.

5) Picking a card and rolling a die.

6) Spinning a balanced spinner twice.

7) Spinning a weighted spinner twice.

8) Rolling a die three times.



Suppose the probability of a student liking dogs, country music, and broccoli are all independent events.

If the probability that a student liking dogs is .8, the probability that a student likes country music is .4, and the probability that a student likes broccoli is .2.

9) What is the probability that a student selected at random likes both dogs and broccoli?

10) What is the probability that a random student likes country music and dogs?

11) What is the probability that a student <u>doesn't</u> like dogs?

12) What is the probability that a student <u>doesn't</u> like country music?

13) What is the probability that a student likes all three?

14) What is the probability that a student <u>doesn't</u> like any of them?

15) What is the probability that a student likes country music and broccoli but not dogs?

A drawer contains six gray socks, four brown socks and one pink sock. You pick socks without looking and without putting them back.

16) What is the probability that the first two socks you pick are both gray?

17) What is the probability that the first two socks you pick are both brown?

18) What is the probability that the first two socks you pick are both pink?

19) What is the SAMPLE SPACE for selecting two socks? (Remember, order matters.)

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20) What is the sample space for problem #1? Are all of the elements equally likely?

21) What is the sample space for problem #2? Are all of the elements equally likely?

22) What is the sample space for flipping a coin three times? Are all the elements equally likely?

A game on The Price Is Right involves drawing cards to spell the word "CAR". There are six Cs, six As, and three Rs as well as one card that says "CAR". If the contestant spells the whole word (on one card or three), they win a car. Once a card is picked, it is not put back.

23) What is the probability of picking a C, then an A, then an R on your first three picks?

24) Rico picks the letter R twice in a row. What is the probability that he will finish spelling "CAR" with only letters on his next two picks?

25) Kaycee picks three As in a row. What is the probability she will win with her next pick?

26) What is the probability of picking four Cs in a row?

27) What is the probability of winning this game if you get to pick three cards?