10.2 Compound Probability

NOTES

MATH 7

Write your questions here!

Mr. Brust flips a coin twice. What is the probability he gets tails twice?

TREE DIAGRAMS

SAMPLE SPACE

OUTCOMES

COMPOUND Probability is _____

We can find compound probabilities by multiplying the probabilities of each event.

A container holds 4 red pens, 3 purple pens, and 2 blue pens.

Use the above information to answer the following WITH replacement.

WITH REPLACEMENT

1) Find P (red pen, purple pen)

2) Find P (blue, red)

Use the above information to answer the following WITHOUT replacement.

4) Find P (red pen, purple pen)

5) Find P (blue, blue)

WITHOUT REPLACEMENT

Independent? Dependent?

INDEPENDENT

DEPENDENT

When we have two events, we have to see if the outcome of the one event can change the probability of the other event.

_____ events have probabilities that never change.

If the probabilities of the two events can change, the events are _____.

INDEPENDENT

DEPENDENT

You randomly choose a marble from a jar. You replace the marble (put it back in the jar) and randomly choose another marble. **INDEPENDENT or DEPENDENT**

You randomly draw a card from a deck of cards. You keep the card and then randomly draw another card. **INDEPENDENT or DEPENDENT**

Suppose Mr. Brust was nice enough to give you a pack of M&Ms and you count and record how many of each color was in the bag.

M&M Distribution

Red	Yellow	Blue	Green	Brown
8	5	7	4	2

You select an M&M and eat it. Then, you select another M&M and eat that, too. (You must be hangry!) Find the following probabilities.

P(Red, then Blue)_____ P(Green, Green) _____

Counting with Tree Diagrams

Mr. Brust is living large on the beaches of Sicily during summer. He only uses 3 different shirts (blue, green and red), 2 pair of shorts (black and white) and 2 type of shoes (flip flops, crocs). How many total outfits can Brust make?

SUMMARY:

Now, summarize your notes here!

10.2 Compound Probability

Practice

Tell whether the events are INDEPENDENT or DEPENDENT. **(circle one)**

1. You spin a spinner. Then you flip a coin. **INDEPENDENT or DEPENDENT**

2. You randomly choose 1 of 10 marbles. Then you randomly choose one of the REMAINING 9 marbles. **INDEPENDENT or DEPENDENT**

3. You toss a coin twice. **INDEPENDENT or DEPENDENT**

4. You spin a penny and a nickel on a table. The penny lands on heads and the nickel lands on tails. **INDEPENDENT or DEPENDENT**

5. A container has 7 green buttons, 3 yellow buttons and 4 blue buttons. You reach in and randomly draw out a blue button. You KEEP the blue button and reach in again to draw out a second blue button.
INDEPENDENT or DEPENDENT

A container holds 3 red pens, 6 black pens, 4 purple pens, and 2 blue pens.

Use the above information to answer the following WITH replacement.

6. Find P (red pen, purple pen)
7. Find P (blue and then red)
8. Find P (black, black)

Use the above information to answer the following WITHOUT replacement.

9. Find P (red pen, purple pen)
10. Find P (blue and then red)
11. Find P (black, black)

Find each probability.
Each item is NOT REPLACED.

12. A box contains 6 red and 5 blue pencils. Choose a red one, keep it, and choose another red one.

Find each probability.
Each item IS REPLACED.

13. A box contains 6 red and 5 blue pencils Choose a red one and choose another red one.

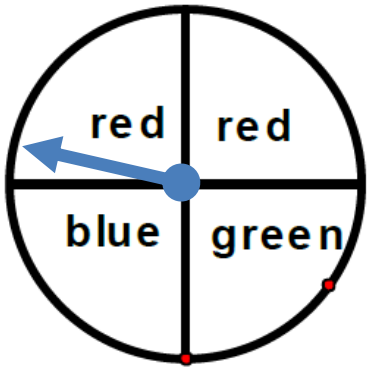
The colors of M&Ms in a large bag are given in the table.

M&M Distribution				
Red	Yellow	Blue	Green	Brown
2	5	7	6	10

14. You draw 2 M&M's without replacement. Find P(2 Greens) as a fraction and as a decimal.

15. You draw 2 M&M's with replacement. Find P(2 Greens) as a fraction and as a decimal.

Use the spinner shown below for questions 16-19.



16. Find P(spin Blue).

17. Find P(spin Red).

18. Find P(spin Green and then Blue)

19. What is the sample space of 2 spins? Hint: There are 9 outcomes!

Bob has 5 books about cats, 6 books about dogs, and 2 books about fish. Use this to answer 22-24.

20. How many different ways can Bob select one book on cats, one on dogs, and one of fish?

21. Bob randomly grabs one of his books. Find P(fish book).

22. Bob randomly grabs two of his books (without replacement). Find P(two cat books).

WRAP UP

Find each probability.

Each item is NOT REPLACED.

1. A box contains 3 white and 5 blue marbles.
   Choose a white one, keep it, and choose a blue one.

Each item IS REPLACED.

2. A bag contains 10 blue and 15 red M&Ms
   Choose a red one and choose and other red one.

3. Bob can order a **P**epsi or **F**anta in a **S**mall, **M**edium or **L**arge. How many different sodas can Bob possibly order? Draw a tree diagram and list all possible outcomes.

EXIT TICKET –

The colors of M&Ms in a large bag are distributed according to the probabilities shown in the table:

Color	Brown	Red	Yellow	Green	Orange	Blue
Probability	0.25	0.25	0.20	0.10	0.10	?

Fill in the table by finding P(blue). (HINT: ALL OF THE PROBABILITIES ADD TO WHAT NUMBER?)

You draw 2 M&M's, with replacement. Find P(red and then orange).