Is the following a probability model? What do we call the outcome "green"?

Color	Probability
red	0.1
green	0
blue	0.2
brown	0.3
yellow	0.15
orange	0.25

Is the table above an example of a probability model?

- A. Yes, because the probabilities sum to 1 and they are all greater than or equal to 0 and less than or equal to 1.
- B. No, because not all the probabilities are greater than 0.
- C. Yes, because the probabilities sum to 1.
- D. No, because the probabilities do not sum to 1.

What do we call the outcome "green"?

- A. Impossible event
- B. Unusual event
- C. Certain event
- D. Not so unusual event

#1

Click to select your answer.

Describe the sample space of possible outcomes.

Determining a person's favorite steak (rib-eye (R), filet (F), T-bone (T), sirloin (S)) and doneness (rare (R), medium (M), well done (W))

Choose the correct answer below.

- A. {RR, RM, FR, FM, TR, TM, SR, SM, MR, MM}
- B. {RR, RM, RW, FR, FM, FW, TR, TM, TW, SR, SM, SW}
- C. {RR, RM, RW, FR, FM, FW, TR, TM, TW}
- D. {RR, RM, FR, FM, TR, TM, SR, SM}

#2

Let the sample space be S = {1, 2, 3, 4, 5, 6}. Suppose the outcomes are equally likely. Compute the probability of the event E = "an odd number less than 6".

P(E) = ☐ (Type an integer or a simplified fraction.)

More

#3

Enter your answer in the answer box.

A probability experiment is conducted in which the sample space of the experiment is S = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}, event F = {5, 6, 7}, and event G = {9, 10, 11, 12}. Assume that each outcome is equally likely. List the outcomes in F or G. Find P(F or G) by counting the number of outcomes in F or G. Determine P(F or G) using the general addition rule.

List the outcomes in F or G. Choose the correct answer below.

A. F or G = {9, 10, 11, 12}

B. F or G = {5, 6, 7}

C. F or G = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}

D. F or G = {5, 6, 7, 9, 10, 11, 12}

Find P(F or G) by counting the number of outcomes in F or G.

P(F or G) = ☐ (Type an integer or a simplified fraction.)

Determine P(F or G) using the general addition rule.

P(F or G) = ☐ (Type an integer or a simplified fraction.)

#4

Click to select your answer(s).

The data on the right represent the number of live multiple-delivery births (three or more babies) in a particular year for women 15 to 54 years old. Use the data to determine the following.

Age	Number of Multiple Births
15-19	92
20-24	507
25-29	1637
30-34	2831
35-39	1843
40-44	379
45-54	119

a. Determine the probability that a randomly selected multiple birth for women 15-54 years old involved a mother 30 to 39 years old.

P(30 to 39) ≈ ☐ (Round to three decimal places as needed.)

b. Determine the probability that a randomly selected multiple birth for women 15-54 years old involved a mother who was not 30 to 39 years old.

P(not 30 to 39) ≈ ☐ (Round to three decimal places as needed.)

c. Determine the probability that a randomly selected multiple birth for women 15-54 years old involved a mother who was less than 45 years old.

P(less than 45) ≈ ☐ (Round to three decimal places as needed.)

d. Determine the probability that a randomly selected multiple birth for women 15-54 years old involved a mother who was at least 20 years old.

P(at least 20) ≈ ☐ (Round to three decimal places as needed.)

#5

Suppose that events E and F are independent, P(E) = 0.3, and P(F) = 0.8. What is the P(E and F)?

The probability P(E and F) is [ ].
(Type an integer or a decimal.)

More

#6

Suppose that E and F are two events and that P(E) = 0.6 and P(F|E) = 0.7. What is P(E and F)?

P(E and F) = ☐

(Simplify your answer.)

More

#8

About 11% of the population of a large country is allergic to pollen. If two people are randomly selected, what is the probability both are allergic to pollen? What is the probability at least one is allergic to pollen?

(a) The probability that both will be allergic to pollen is ☐.
(Round to four decimal places as needed.)

(b) The probability that at least one person is allergic to pollen is ☐.
(Round to four decimal places as needed.)

More

#7

The data represent the number of driving fatalities for a certain area by age for male and female drivers.

	Male	Female
under 16	118	128
16-20	5559	2498
21-34	10,860	4050
35-54	14,388	4738
55-69	5193	1591
70 and over	2855	1452

(a) What is the probability that a randomly selected driver fatality who was female was 21 to 34 years old?

The probability that a randomly selected driver fatality who was female was 21 to 34 years old is approximately ☐.
(Round to three decimal places as needed.)

(b) What is the probability that a randomly selected driver fatality who was 21 to 34 was female?

The probability that a randomly selected driver fatality who was 21 to 34 was female is approximately ☐. (Round to three decimal places as needed.)

(c) Is a victim of a fatal accident aged 21 to 34 more likely to be male or female? Choose the correct statement below.

- ○A. The driver is more likely to be female because the probability is greater than 0.5.
- ○B. The driver is more likely to be male because the probability is greater than 0.5.
- ○C. The driver is more likely to be male because the probability is less than 0.5.
- ○D. The driver is more likely to be female because the probability is less than 0.5.

#9

Suppose there is a 10.6% probability that a randomly selected person aged 35 years or older is a smoker. In addition, there is a 14.8% probability that a randomly selected person aged 35 years or older is female, given that he or she smokes. What is the probability that a randomly selected person aged 35 years or older is female and smokes? Would it be unusual to randomly select a person aged 35 years or older who is female and smokes?

The probability that a randomly selected person aged 35 years or older is female and smokes is [ ] (Round to three decimal places as needed.).

Would it be unusual?

- No
- Yes

#10

Find the value of the factorial.

8!

8! = ☐ (Type a whole number.)

#11

Find the value of the permutation.

$_8P_8$

$_8P_8 =$ ☐ (Type a whole number.)

#12

Find the value of the combination.

$_2C_1$

$_2C_1 =$ ☐

#13

Outside a home, there is a 7-key keypad numbered 1 through 7. The correct four-digit code will open the garage door. The numbers can be repeated in the code.

(a) How many codes are possible?
(b) What is the probability of entering the correct code on the first try, assuming that the owner doesn't remember the code?

(a) The number of possible codes is ☐.
(Type an integer or fraction. Simplify your answer.)

(b) The probability that the correct code is given on the first try, assuming that the owner doesn't remember it is ☐.
(Type an integer or fraction. Simplify your answer.)

#14

The grade appeal process at a university requires that a jury be structured by selecting five individuals randomly from a pool of nine students and eight faculty. (a) What is the probability of selecting a jury of all students? (b) What is the probability of selecting a jury of all faculty? (c) What is the probability of selecting a jury of three students and two faculty?

(a) What is the probability of selecting a jury of all students?

☐ (Round to five decimal places as needed.)

(b) What is the probability of selecting a jury of all faculty?

☐ (Round to five decimal places as needed.)

(c) What is the probability of selecting a jury of three students and two faculty?

☐ (Round to five decimal places as needed.)

#15