

Grade 7 · Probability of Compound Events · Test

Common Core 7.SP.C.8 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This test has nine questions worth 20 points in total and takes about 45 minutes. It covers Common Core 7.SP.C.8: sample spaces, probabilities of compound events and simulations. Show the outcomes you count, write each probability as a simplified fraction, and keep your work neat so partial credit can be given.

Test information

- **Grade:** Grade 7
- **Chapter:** Probability of Compound Events
- **Common Core:** 7.SP.C.8
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 3 pts; Question 6: 2 pts; Question 7: 3 pts; Question 8: 2 pts; Question 9: 2 pts)

Question 1: Pizza orders (2 points)

A pizza shop offers a thin crust or a thick crust with one topping: pepperoni, mushroom or olives.

- Write an organized list of all possible pizzas. (1 point)
- One pizza is chosen at random. Find the probability that it has mushroom. (1 point)

Question 2: Coin and number cube (2 points)

Maya flips a coin and rolls a number cube numbered 1 to 6.

- How many outcomes are in the sample space? (1 point)
- Find the probability of tails and a prime number. (1 point)

Question 3: Table of sums (2 points)

Two fair four-sided cubes, each numbered 1 to 4, are rolled and the numbers are added.

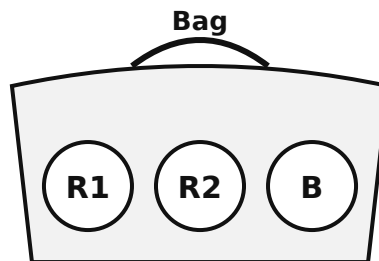
	Cube 2			
Cube 1	1	2	3	4
1				
2				
3				
4				

Empty table for the sums.

- Complete the table of sums. (1 point)
- Find the probability that the sum is greater than 5. (1 point)

Question 4: Draw without replacement (2 points)

A bag holds two red marbles (R1 and R2) and one blue marble (B). Sofia draws two marbles without putting the first back.



Treat the two red marbles as different.

- List the sample space. (1 point)
- Find the probability that exactly one marble is red. (1 point)

Question 5: Sums of two number cubes (3 points)

The table shows every sum when two fair number cubes are rolled.

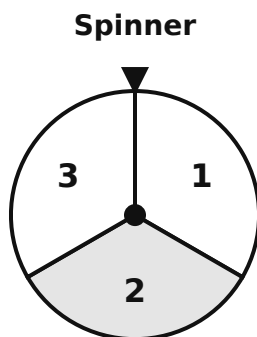
Cube 2						
Cube 1	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

All 36 outcomes of two number cubes.

- Find the probability of a sum of 8. (1 point)
- Find the probability of a sum less than 5. (1 point)
- Find the probability that the sum is a multiple of 5. (1 point)

Question 6: Predict from probability (2 points)

In a game, Ethan spins the spinner and flips a coin.



The three sections are equal.

- Find the probability of heads and a 3. (1 point)
- Ethan plays 120 times. Predict how many times he gets heads and a 3. (1 point)

Question 7: Simulate three children (3 points)

Mei wants to estimate the probability that a family with three children has three girls. She reads random digits and lets an even digit stand for a girl and an odd digit for a boy. Each group of three digits is one trial.

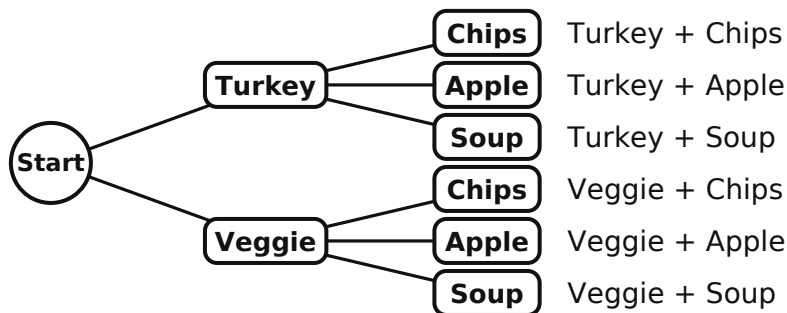
1: 482	2: 175	3: 360	4: 246	5: 913	6: 508
7: 625	8: 731	9: 874	10: 459	11: 063	12: 297

Twelve simulated families.

- Explain why even and odd digits are a fair model for one child. (1 point)
- Use the twelve trials to estimate the probability of three girls. (1 point)
- List the sample space for three children (G or B each) and find the theoretical probability of three girls. (1 point)

Question 8: Lunch tree diagram (2 points)

Jamal picks a sandwich and a side at random. The tree diagram shows the choices.



Six equally likely lunches.

- Find the probability that the side is soup. (1 point)
- Find the probability of a veggie sandwich with an apple. (1 point)

Question 9: Design a simulation (2 points)

A baseball player gets a hit in about one-third of his at-bats. Describe a simulation with a number cube to estimate the probability of at least one hit in two at-bats. Tell what each number means, what one trial is and what to count.