

Grade 7 - Compound Events and Simulations - Test

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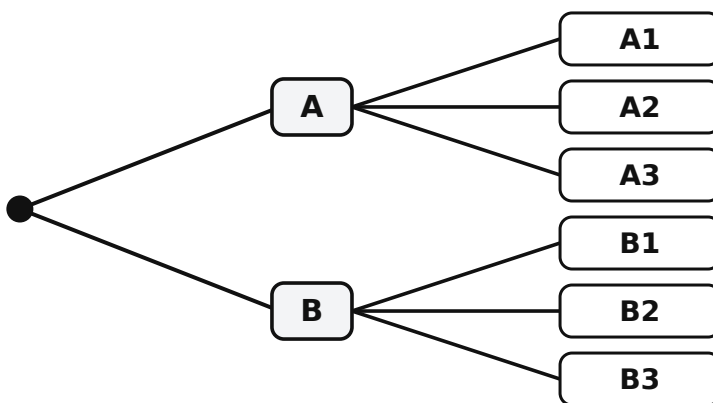
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks the probability of compound events using organized lists, tables, tree diagrams, and simulations (Common Core 7.SP.C.8). It has 9 questions worth 20 points in all. Show your work, because most questions give partial credit for correct steps.

About this test

- Grade: Grade 7
- Chapter: Compound Events and Simulations
- Standards: 7.SP.C.8
- Time: 45 minutes
- Total: 20 points

Question 1 - Sample space [2 pts]



A tree diagram.

List the sample space shown and find the probability of an outcome with the letter A and an odd number.

Question 2 - Two dice [2 pts]

+	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

Sums of two dice.

Use the table to find $P(\text{sum is } 8)$ and $P(\text{sum is less than } 4)$.

Question 3 - Counting principle [2 pts]

A pizza shop offers 3 crusts, 4 sauces, and 5 toppings. How many different pizzas have one of each? What is the probability of picking one specific pizza at random?

Question 4 - With replacement [2 pts]

A bag has 3 green and 2 yellow marbles. One is drawn, replaced, and a second is drawn. Find $P(\text{both green})$.

Question 5 - At least one [2 pts]

A fair coin is tossed three times. Find the probability of getting at least one head. Hint: find $P(\text{no heads})$ first.

Question 6 - Design a simulation [2 pts]

A spinner lands on blue 30% of the time. Describe how to use random digits 0 to 9 to simulate three spins and how to estimate the probability of at least one blue.

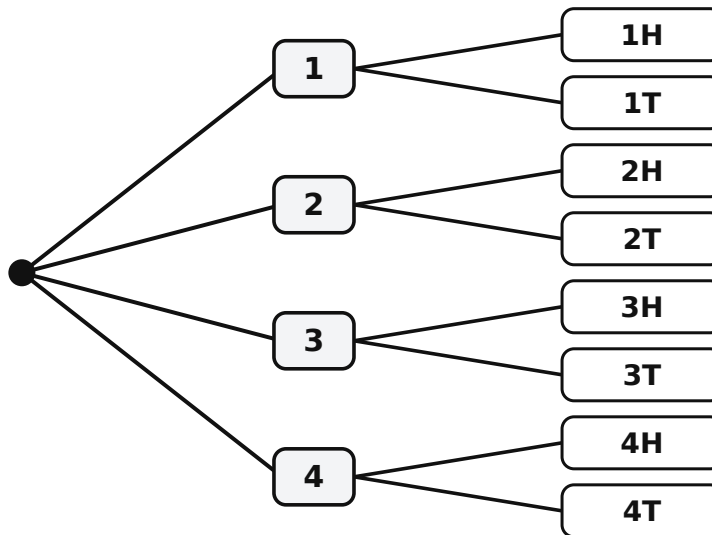
Question 7 - Simulation results [2 pts]

Trial	Digits
1-5	912 384 057 616 249
6-10	877 130 552 408 792

Ten simulated trials.

The digits 0, 1, 2 mean blue. Use the ten trials to estimate $P(\text{at least one blue in three spins})$.

Question 8 - Spinner and coin [3 pts]



A spinner numbered 1 to 4 and a coin.

- How many outcomes are there? (1 point)
- Find $P(\text{even number and heads})$. (1 point)
- Find $P(\text{number greater than 2 and tails})$. (1 point)

Question 9 - Dice differences [3 pts]

	Die 1	Die 2
Roll	any 1 to 6	any 1 to 6

Two dice.

- How many outcomes are there? (1 point)
- Find $P(\text{the two numbers differ by exactly 1})$. (1 point)
- Find $P(\text{the numbers are the same})$. (1 point)