

Compound Events, Sample Spaces and Simulations

Grade 7 math · Test · Standards: 7.SP.C.8

Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points on sample spaces, tables, tree diagrams, compound probabilities and simulations. Allow 45 minutes, show each list or count, and write probabilities as simplified fractions.

Standards: 7.SP.C.8 · **Level:** Grade 7

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 List a sample space (2 points)

A spinner with sections A, B, C is spun and a coin is flipped. (a) List all outcomes in the sample space. (1 point) (b) Find $P(C \text{ and tails})$. (1 point)

Question 2 Two number cubes (3 points)

Two number cubes are rolled. The table shows the outcomes.

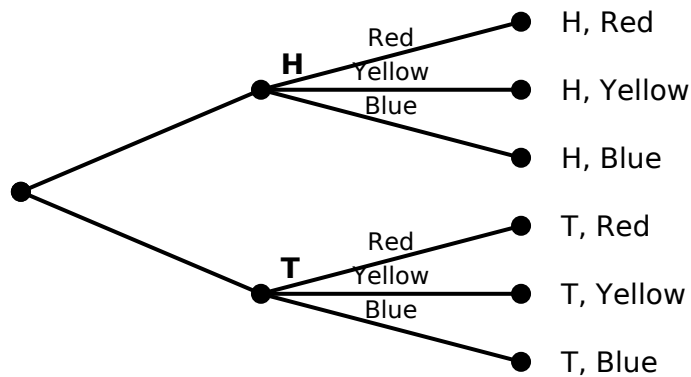
	Cube 2					
	1	2	3	4	5	6
Cube 1	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

Sums of two number cubes.

- Find $P(\text{sum is } 9)$. (1 point)
- Find $P(\text{sum is } 4 \text{ or less})$. (1 point)
- Find $P(\text{both cubes show the same number})$. (1 point)

Question 3 Tree diagram (3 points)

A coin is flipped and a spinner with three equal sections (Red, Yellow, Blue) is spun.



Coin, then spinner.

- How many outcomes are in the sample space? (1 point)
- Find $P(\text{heads and Yellow})$. (1 point)
- Find $P(\text{tails and not Blue})$. (1 point)

Question 4 Outfits (2 points)

Dana has 6 shirts, 3 hats and 2 pairs of shoes. (a) How many outfits of one shirt, one hat and one pair of shoes are possible? (1 point) (b) One outfit is picked at random. What is the probability of one specific outfit? (1 point)

Question 5 Sums of spinners (2 points)

Spinner 1 has sections 1, 2, 3 and Spinner 2 has sections 2 and 4.

		Spin 2	
Spin 1		2	4
1			
2			
3			

Fill in the sums.

- Complete the table of sums. (1 point)
- Find $P(\text{sum is greater than 4})$. (1 point)

Question 6 Draw without replacement (3 points)

A box holds 2 blue tiles and 3 yellow tiles. Two tiles are drawn at random, one after the other, without putting the first back. (a) How many ordered pairs of tiles are possible? (1 point) (b) Find $P(\text{both yellow})$. (1 point) (c) Find $P(\text{one of each color})$. (1 point)

Question 7 Design a simulation (3 points)

A family has 3 children. Design a coin simulation to estimate the probability that exactly 2 are

boys. (a) Say what each flip and each trial represents. (1 point) (b) Say how to decide that a trial is a success. (1 point) (c) Ten trials were BBG, GGG, BGB, GBB, GGB, BBB, BGG, GBG, BGG, BGB. Find the experimental probability. (1 point)

Question 8 Coin and cube game (2 points)

A game uses a coin flip and a spin of a spinner with 5 equal sections numbered 1 to 5. A player wins with tails and a number less than 3. (a) How many outcomes are in the sample space? (1 point) (b) Find the probability of winning. (1 point)