

Compound Events, Sample Spaces and Simulations

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

The answer key gives full solutions and a scoring guide. Give credit for any organized method that finds the correct sample space, and award a point for a correct probability even if the list was drawn as a table rather than a tree.

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

Question 1 List a sample space (2 points)

- A-H, A-T, B-H, B-T, C-H, C-T** (6 outcomes).
- One outcome, C-T, out of 6: **$\frac{1}{6}$** .

Scoring: 1 point for each part.

Question 2 Two number cubes (3 points)

- Sum 9: (3, 6), (4, 5), (5, 4), (6, 3), so $\frac{4}{36} = \frac{1}{9}$.
- Sums 2, 3, 4 occur $1 + 2 + 3 = 6$ times: $\frac{6}{36} = \frac{1}{6}$.
- Doubles: (1, 1) through (6, 6), so $\frac{6}{36} = \frac{1}{6}$.

Scoring: 1 point for each part.

		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

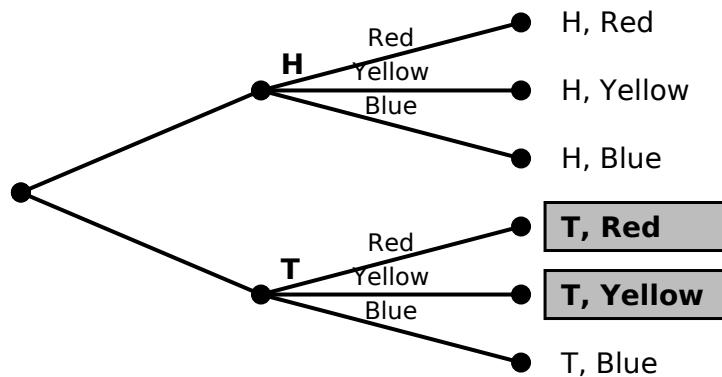
The 6 shaded cells are doubles.

Question 3 Tree diagram (3 points)

- $2 \times 3 = 6$.

- b. One outcome, H-Yellow: **$\frac{1}{6}$** .
 c. T-Red and T-Yellow: $\frac{2}{6} = \frac{1}{3}$.

Scoring: 1 point for each part.



Shaded: T, Red and T, Yellow.

Question 4 Outfits (2 points)

- a. $6 \times 3 \times 2 = 36$.
 b. **$\frac{1}{36}$** .

Scoring: 1 point for each part.

Question 5 Sums of spinners (2 points)

- a. The sums are 3, 5 / 4, 6 / 5, 7.
 b. The sums greater than 4 are 5, 6, 5, 7, which is 4 of 6 outcomes: **$\frac{2}{3}$** .

Scoring: 1 point for each part.

	Spin 2	
	2	4
Spin 1		
1	3	5
2	4	6
3	5	7

Shaded sums are greater than 4.

Question 6 Draw without replacement (3 points)

- a. $5 \times 4 = 20$ ordered pairs.
 b. Both yellow: $3 \times 2 = 6$, so $\frac{6}{20} = \frac{3}{10}$.
 c. Blue then yellow: $2 \times 3 = 6$, and yellow then blue: $3 \times 2 = 6$. Total 12, so $\frac{12}{20} = \frac{3}{5}$.

Scoring: 1 point for each part.

Question 7 Design a simulation (3 points)

- a. One flip is one child: heads is a boy and tails is a girl. One trial is 3 flips, one family.
- b. A trial succeeds when exactly 2 of the 3 flips are heads.
- c. Successes: BBG, BGB, GBB, BGB, which is 4 of 10, so **0.4**.

Scoring: 1 point for each part.

Question 8 Coin and cube game (2 points)

- a. $2 \times 5 = \mathbf{10}$.
- b. Winning outcomes: T1 and T2, so $2/10 = \mathbf{1/5}$.

Scoring: 1 point for each part.