

Grade 7 - Compound Events and Simulations - Test Answer Key

Common Core 7.SP.C.8 · maths-pdf.fr/en/

Use this answer key and scoring guide to grade the compound events test. Each solution shows the full work, and the scoring note explains how the points are awarded. Give partial credit for correct steps even when the final answer is wrong.

Grade 7 · Common Core State Standards: **7.SP.C.8**

Question 1 - Sample space [2 pts]

A1, A2, A3, B1, B2, B3.

A with an odd number: A1, A3, which is 2 of 6.

$$\frac{2}{6} = \frac{1}{3}$$

6 outcomes; $\frac{1}{3}$

Scoring: 1 point for the sample space; 1 point for the probability.

Question 2 - Two dice [2 pts]

Sum 8 occurs 5 times: $\frac{5}{36}$.

Sums less than 4: 2 (once) and 3 (twice) = 3 outcomes: $\frac{3}{36} = \frac{1}{12}$

$$\frac{5}{36}; \frac{1}{12}$$

Scoring: 1 point for each probability.

Question 3 - Counting principle [2 pts]

$$3 \times 4 \times 5 = 60.$$

$$\frac{1}{60}$$

60 pizzas; $\frac{1}{60}$

Scoring: 1 point for the count; 1 point for the probability.

Question 4 - With replacement [2 pts]

$$\frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$$

$$\frac{9}{25}$$

Scoring: 1 point for each probability used; the product earns the second point.

Question 5 - At least one [2 pts]

All outcomes: 8. No heads: TTT only, so $\frac{1}{8}$.

$$1 - \frac{1}{8} = \frac{7}{8}$$

$$\frac{7}{8}$$

Scoring: 1 point for $P(\text{no heads})$; 1 point for the complement.

Question 6 - Design a simulation [2 pts]

Let 0, 1, 2 mean blue and 3 to 9 mean not blue (3 of 10 = 30%).

Read three digits per trial; count trials with at least one of 0, 1, 2; divide by the number of trials.

Digits 0 to 2 = blue

Scoring: 1 point for the digit assignment; 1 point for the counting plan.

Question 7 - Simulation results [2 pts]

Check each trial for a digit 0, 1, or 2.

Hits: 912, 057, 616, 249, 130, 552, 408, 792. The trials 384 and 877 have none.

That is 8 of 10, so the estimate is 0.8.

0.8

Scoring: 1 point for identifying hits; 1 point for the estimate.

Question 8 - Spinner and coin [3 pts]

- a. $4 \times 2 = 8$ outcomes.
b. 2H and 4T: $\frac{2}{8} = \frac{1}{4}$.
c. 3T and 4T: $\frac{2}{8} = \frac{1}{4}$.

Event	Favorable	Probability
Heads	4	$1/2$
Even and H	2	$1/4$
Greater than 2 and T	2	$1/4$

Counts.

Scoring: 1 point for each part.

Question 9 - Dice differences [3 pts]

- a. $6 \times 6 = 36$.
b. Pairs: (1,2), (2,3), (3,4), (4,5), (5,6) and the reverses, 10 in all: $\frac{10}{36} = \frac{5}{18}$.
c. $\frac{6}{36} = \frac{1}{6}$.

Event	Outcomes	Probability
Differ by 1	10	$5/18$
Same	6	$1/6$

Counts.

Scoring: 1 point for each part.

Total

20 points