ALBERT

Name _____ Date _____

Sample Spaces and Events Worksheet

Geometry · Common Core HSS-CP.A.1

> Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

Practice

Builds the skill step by step.

1. A number cube is rolled once. How many outcomes are in the sample space?

2. Two coins are flipped. How many outcomes are in the sample space?

3. A number cube is rolled. How many outcomes are in the event "roll an even number"?

4. A number cube is rolled. How many outcomes are in the complement of "roll a 6"?

5. A number cube is rolled. A is "roll 1, 2 or 3" and B is "roll an even number." How many outcomes are in A or B?

6. For the same events (A: 1, 2 or 3; B: even), how many outcomes are in A and B?

7. What does the event "not A" contain?

   A. only the outcomes in A

   B. nothing

   C. every outcome in A or B

   D. every outcome in the sample space that is not in A

8. A spinner has sections numbered 1 to 8. How many outcomes are in the event "greater than 5"?

9. A coin is flipped and a number cube is rolled. How many outcomes are in the sample space?

10. Which set operation matches the word "or"?

    A. union

    B. intersection

    C. complement

    D. subset

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On Level

Grade-level practice.

1. A card is drawn from a standard 52-card deck. How many outcomes are in the event "heart"?

2. A card is drawn from a standard deck. How many outcomes are in "heart or king"?

3. A card is drawn from a standard deck. How many outcomes are in "heart and king"?

4. A card is drawn from a standard deck. How many outcomes are in "not a face card" (face cards are jacks, queens and kings)?

5. Two number cubes are rolled. How many outcomes are in the sample space?

6. Two number cubes are rolled. How many outcomes have a sum of 7?

7. Two number cubes are rolled. How many outcomes are doubles or have a sum of 8?

8. Three coins are flipped. How many outcomes have exactly two heads?

9. In a Venn diagram, which event is the part of circle A outside circle B?

   A. A and not B

   B. A or B

   C. A and B

   D. not A and B

10. Two coins are flipped. Describe the event "at least one head" using the complement, and list its outcomes.

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Challenge

Multi-step and word problems that stretch it.

1. In a class of 30, 12 are in band, 10 are in choir and 4 are in both. How many are in band or choir?

2. In that class (30 students; 12 band, 10 choir, 4 both), how many are in neither?

3. In that class, how many are in band but not choir?

4. Two number cubes are rolled. How many outcomes have a sum of at least 10?

5. Three coins are flipped. How many outcomes have at least one tail?

6. What does it mean for events A and B to be mutually exclusive?

   A. A and B contains no outcomes.

   B. A or B is the whole sample space.

   C. A is the complement of B.

   D. A and B have the same probability.

7. A card is drawn from a standard deck. How many outcomes are in "red or face card"?

8. A card is drawn from a standard deck. How many outcomes are in "not (red or face card)"?

9. Two spinners, each numbered 1 to 4, are spun. How many outcomes have an even product?

10. Which event is the same as "not (A or B)"?

    A. not A and not B

    B. not A or not B

    C. A and B

    D. not A and B