Name _____ Score _____ Teacher _____ Date _____

Compound Counting and Probability

Show favorable and total counts before forming a probability. For collisions, use the no-collision complement.

1. **In a group of 56, 31 chose art, 26 chose music, and 6 chose both. Find the number in exactly one group, in the union, and in neither group.**

Reference: Use |A union B|=|A|+|B|-|A intersection B|. Subtract the union from the total for neither.

2. **A survey of 42 people recorded sets A, B, and C. Totals are |A|=14, |B|=17, |C|=17, |A intersection B|=4, |A intersection C|=4, |B intersection C|=4, and |A intersection B intersection C|=1. Find the union and neither.**

Reference: For three sets, add singles, subtract pair intersections, then add the triple intersection once.

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Compound Counting and Probability

Show favorable and total counts before forming a probability. For collisions, use the no-collision complement.

3. **4 selections are made independently and uniformly from 15 labels, with replacement. Find the probability that at least two selections match.**

Reference: Compute 1 minus the probability that all selections are distinct.

4. **A code uses one of 8 colors followed by one of 10 digits, with every code equally likely. A prize code uses one of 4 marked colors and one of 8 marked digits. Find the favorable count, total count, and probability.**

Reference: Use the multiplication rule separately for favorable outcomes and for all outcomes.

Name _____ Score _____ Teacher _____ Date _____

Compound Counting and Probability

Show favorable and total counts before forming a probability. For collisions, use the no-collision complement.

5. **6 selections are made independently and uniformly from 19 labels, with replacement. Find the probability that at least two selections match.**

Reference: Compute 1 minus the probability that all selections are distinct.

6. **A survey of 41 people recorded sets A, B, and C. Totals are |A|=14, |B|=16, |C|=15, |A intersection B|=5, |A intersection C|=5, |B intersection C|=5, and |A intersection B intersection C|=2. Find the union and neither.**

Reference: For three sets, add singles, subtract pair intersections, then add the triple intersection once.

State the model or rule, show exact setup, then round only the final decimal.

Name _____ Score _____ Teacher _____ Date _____

Compound Counting and Probability

Show favorable and total counts before forming a probability. For collisions, use the no-collision complement.

7. **A code uses one of 6 colors followed by one of 10 digits, with every code equally likely. A prize code uses one of 2 marked colors and one of 3 marked digits. Find the favorable count, total count, and probability.**

Reference: Use the multiplication rule separately for favorable outcomes and for all outcomes.

8. **In a group of 54, 28 chose art, 28 chose music, and 6 chose both. Find the number in exactly one group, in the union, and in neither group.**

Reference: Use |A union B|=|A|+|B|-|A intersection B|. Subtract the union from the total for neither.