

11.1.1: Sample Spaces and Probability (Exercises)

SECTION 11.1 PROBLEM SET: SAMPLE SPACES AND PROBABILITY

In problems 1 - 6, write a sample space for the given experiment.

1) A die is rolled.	2) A penny and a nickel are tossed.
3) A die is rolled, and a coin is tossed.	4) Three coins are tossed.
5) Two dice are rolled.	6) A jar contains four marbles numbered 1, 2, 3, and 4. Two marbles are drawn.

In problems 7 - 12, one card is randomly selected from a deck. Find the following probabilities.

7) $P(\text{an ace})$	8) $P(\text{a red card})$
9) $P(\text{a club})$	10) $P(\text{a face card})$
11) $P(\text{a jack or a spade})$	12) $P(\text{a jack and a spade})$

For problems 13 - 16: A jar contains 6 red, 7 white, and 7 blue marbles. If one marble is chosen at random, find the following probabilities.

13) $P(\text{red})$	14) $P(\text{white})$
15) $P(\text{red or blue})$	16) $P(\text{red and blue})$

For problems 17 - 22: Consider a family of three children. Find the following probabilities.

17) $P(\text{two boys and a girl})$	18) $P(\text{at least one boy})$
19) $P(\text{children of both sexes})$	20) $P(\text{at most one girl})$
21) $P(\text{first and third children are male})$	22) $P(\text{all children are of the same gender})$

For problems 23 - 27: Two dice are rolled. Find the following probabilities.

23) $P(\text{the sum of the dice is 5})$	24) $P(\text{the sum of the dice is 8})$
25) $P(\text{the sum is 3 or 6})$	26) $P(\text{the sum is more than 10})$
27) $P(\text{the result is a double})$ (Hint: a double means that both dice show the same value)	

For problems 28-31: A jar contains four marbles numbered 1, 2, 3, and 4. Two marbles are drawn randomly WITHOUT REPLACEMENT. That means that after a marble is drawn it is NOT replaced in the jar before the second marble is selected. Find the following probabilities.

28) $P(\text{the sum of the numbers is 5})$	29) $P(\text{the sum of the numbers is odd})$
30) $P(\text{the sum of the numbers is 9})$	31) $P(\text{one of the numbers is 3})$

For problems, 32-33: A jar contains four marbles numbered 1, 2, 3, and 4. Two marbles are drawn randomly WITH REPLACEMENT. That means that after a marble is drawn it is replaced in the jar before the second marble is selected. Find the following probabilities.

32) $P(\text{the sum of the numbers is 5})$	33) $P(\text{the sum of the numbers is 2})$
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