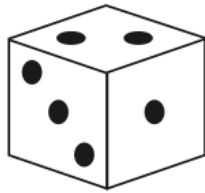
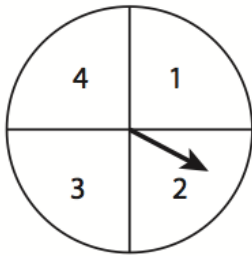


SHOW ALL WORK. If you need to show your work on a separate piece of paper, please do!

1. Nasir tosses a coin 3 times. What is the probability that he gets at least 2 tails? Write your answer as a fraction, as a decimal, and as a percent.

2. Bianca is playing a board game. She spins the spinner and rolls a standard 6-sided die. Let s be the spinner result and let d be the die result.



a. What is the probability that $s + d > 3$ and $s \cdot d > 3$?

b. What is the probability that $s + d > 5$ and $s \cdot d < 10$?

3. Consuela is playing a card game with a standard 52-card deck. She wants a king or a diamond on her first draw. What is the probability that she gets a king or a diamond on her first draw?

4. Ladarius is playing a board game. To find the number of spaces to move, he rolls a pair of dice.

a. What is the probability that Ladarius rolls a double or a sum of 7? Write your answer as a fraction, as a decimal, and as a percent.

b. What is the probability that Ladarius rolls a sum that is less than 4 or greater than 5?

5. Middletown High School has 240 students in the tenth grade. Use this information to complete problems 7 and 8.

a. The only tenth grade math courses are algebra and geometry. All tenth grade students taking at least one math course. There are 142 taking algebra and 120 taking geometry. What is the probability that a randomly chosen tenth grader is taking both algebra and geometry?

b. The only tenth grade music courses are vocal and instrumental. There are 89 tenth grade students taking at least one music course. There are 51 taking vocal and 58 taking instrumental. What is the probability that a randomly chosen tenth grader is taking both vocal and instrumental music?

6. The table below lists the first name and date of birth for five students. The information is presented in letters (for names) and digits (for the birth dates). The total characters for any given student is made up of both letters and digits in their data. The characters of the names are not case sensitive. For example, Trent's characters are t, r, e, n, t, 8, 1, 2, 9, and 7.

Trent	8-12-97
Ramiro	6-15-98
Mara	10-9-98
Pam	2-12-98
Fina	7-15-97

a. If a student is chosen from the group, what is the probability that the choice will contain a repeated letter or a repeated digit?

b. If a student is chosen at random from the group, what is the probability that the choice will contain more than 10 characters and a digit sum greater than 20?

7. A university is offering a two-day conference for high school math teachers. Teachers can register for Monday or Tuesday or both days. The conference coordinator compiles the following data:

150 teachers registered for Monday.

95 registered for Tuesday.

210 teachers registered in all.

One registered teacher is selected at random will win a laptop computer as a door prize. If the selected teacher has registered for both days, he or she will win an additional bonus prize of \$500. What is the probability that the university will have to pay the additional bonus prize?