1. Computer games in which the payers take the roles of characters are very popular. They go back to earlier tabletop games such as Dungeons & Dragons. These games use many different types of dice. A four-sided die has faces with 1, 2, 3, and 4 spots.
   a. List the sample space for rolling the die twice (spots showing on the first and second rolls).

   b. What is the assignment of probabilities to outcomes in this sample space? Assume the die is perfectly balanced.

2. All human blood can be typed as one of O, A, B, or AB, but the distribution of the types varies a bit with race. Here is the distribution of the blood type of a randomly chosen black American.

Blood Type:	O	A	B	AB
Probability:	0.49	0.27	0.20	?

   a. What is the probability of type AB blood? Why?

   b. What is the probability that the person chosen does not have type AB blood?

   c. Maria has type B blood. She can safely receive blood transfusions from people with blood types O and B. What is the probability that a randomly chosen black American can donate blood to Maria?

3. A company that offers courses to prepare students for the GMAT has the following information about its customers: 20% are currently undergraduate students in business, 15% are currently undergraduate students in other fields of study, 60% are college graduates who are currently employed, and 5% are college graduates who are not employed. Choose a customer at random.

    a. What's the probability that the customer is currently an undergraduate? Which rule of probability did you use to find the answer?

    b. What's the probability that the customer is not an undergraduate business student? Which rule of probability did you use to find the answer?

4. Students in an urban school were curious about how many children regularly eat breakfast. They conducted a survey, asking, "Do you eat breakfast on a regular basis?" All 595 students in the school responded to the survey. The resulting data are shown in the two-way table below.

	Male	Female	**Total**
Eats breakfast reg	190	110	**300**
No reg breakfast	130	165	**295**
Total	**320**	**275**	**595**

If we select a student from the school at random, what is the probability that the student is...

a. A female?

b. Someone who eats breakfast regularly?

c. A female and eats breakfast regularly

d. A female or eats breakfast regularly?

e. Construct a Venn Diagram that models the chance process using events B: eats breakfast regularly and M: is male.

f. Find $P(B \cup M)$. Interpret this value in context.

g. Find $P(B^C \cap M^C)$. Interpret this value in context.