Practice: 1. In how many ways can 1st, 2nd, and 3rd place titles be awarded to eight swimmers in a 500-meter freestyle event?

2. In how many ways can we break those 8 swimmers into two groups with four swimmers in each group?

3. An IRS examiner has 30 returns to examine. Unknown to him, 5 of the returns have errors. Suppose he randomly selects returns...
   What is the probability that the first return has an error and the second one doesn't?
   What is the probability that the second return has an error?
   If he selects 3 returns, what is the probability that all three will have errors?
   If he selects 10 returns, what is the probability that 3 will have errors and 7 will have no errors?

4. You are given the following information: 40% of students in statistics classes are NOT engineering majors
                                               30% of students in those classes are freshmen
                                               20% of students in those classes are freshmen AND engineering majors
   If you randomly select one student, what is the probability that the student is an engineering major but not a freshman?

5. The following table displays the results of a poll to determine if citizens supported a tax increase:

	Support	Against	Total
City	100	300	400
Suburb	250	150	400
Country	50	150	200
Total	400	600	1000

   What is the probability of selecting a person who is NOT from the country and who supports the tax increase?

6. Two plants, A & B, ship appliances to a warehouse. Plant A produces 63% of the total warehouse inventory with a 4% defect rate.
   Plant B produces 37% with a defect rate of 8%.
      What is the probability that a randomly selected item from the warehouse has a defect?
      What is the probability that a randomly selected item from the warehouse is a nondefective item from Plant B?
      Suppose you select a defect. What's the probability that the defect came from Plant A?

7. Calculate the expected value and variance of X:

	X = 2	X = 5	X = 9
P(X=x)	0.2	0.5	0.3

8. Suppose we multiply each value of X by 3 and add 7 onto each value. What will happen to the expected value and variance?

9. Several years ago, Pepsi stated you had a 1 in 3 chance of winning a free song on iTunes.
      If you bought 10 bottles of Pepsi, what is the probability that you would have no winners?
      What is the probability you would have 3 winners?
      What is the probability you would have fewer than 5 winners?
      What is the probability you would have more than 6 winners?