

AP Statistics

Probability Practice

1. In a certain city, 35% of adults have high blood pressure or high cholesterol. One out of every four people has high blood pressure, and one out of every five has high cholesterol. Find the probability that a person chosen at random will have both high blood pressure and high cholesterol.
2. On September 11, 2002, the first anniversary of the terrorist attack on the World Trade Center, the New York State Lottery's daily number came up 9-1-1. An interesting coincidence or a cosmic sign?
 - a) What is the probability that the winning three numbers match the date on any given day?
 - b) What is the probability that a whole year passes without this happening?
 - c) What is the probability that the date and winning lottery number match at least once during any given year?
 - d) If every one of the 50 states has a three-digit lottery, what is the probability that at least one of them will come up 9-1-1 on September 11?

For questions 3 to 7, refer to this two-way table, which gives auto crash fatality data from the year 2002.

Crash Type

	Single Vehicle	Multiple Vehicles	Total
Alcohol Related	10,741	4,887	15,628
Not Alcohol Related	11,345	11,336	2,681
Total	22,086	16,223	38,309

3. If a fatal auto crash is chosen at random, what is the probability that the crash involved a single vehicle?
4. If a fatal auto crash is chosen at random, what is the probability that it involved a single and was alcohol related?
5. If a fatal auto crash is chosen at random, what is the probability that it involved a single or was alcohol related?
6. What is the probability that a randomly chosen auto in a fatal crash was alcohol related, given that it involved a single vehicle?
7. Are the events that a fatal crash was alcohol related and a fatal crash involving a single vehicle independent? Explain.
8. A pharmacy has just come out with a new pregnancy test that registers blue (indicating a pregnancy) in 95% of users who are pregnant. However, the new test also registers blue in 5% of users who are not pregnant. Suppose that, in reality, only 4% of women using this test are pregnant.
 - a) What is the probability that a randomly selected woman who uses this test gets a blue result?
 - b) What is the probability that the woman is pregnant if the test registers blue?