

Name:.....Nº:.....course:.....

- 1) There are 20 people who work in an office together. Four of these people are selected to go to the same conference together. How many such selections are possible?
- 2) A password consists of two letters of the alphabet followed by three digits chosen from 0 to 9. Repeats are allowed. How many different possible passwords are there?
- 3) 10% of the pens made by Apex are defective. Only 5% of the pens made by Acme are defective. Because the Apex pens are cheaper, an office orders 70% of its pens from Apex and 30% from Acme.
 - a) If we select a pen at random what is the probability of being defective and made by Apex.
 - b) What is the probability of choosing a defective pen?
 - c) A pen is selected at random and found to be defective. What is the probability that it was manufactured by Acme?
- 4) According to the National Highway Traffic and Safety Administration's National Center for Statistics and Analysis (NCSA), "Speeding is one of the most prevalent factors contributing to fatal traffic crashes" The probability that speeding is a cause of a fatal crash is 0.3. Furthermore, the probability that speeding and missing a curve are causes of a fatal crash is 0.12. In other hand, the probability of having an accident in a curve is 0.6
 - a. Find the probability that the crash occurred in a curve
 - b. Find the probability that the crash occurred by speeding and not in a curve.
 - c. If an accident has occurred in a curve, what is the probability that it was not by speeding.
- 5) A test for tuberculosis was given to 1,000 subjects, 8% of whom were known to have tuberculosis. For the subjects who had tuberculosis, the test indicated tuberculosis in 90% and indicated no tuberculosis in 10%. For the subjects who did not have tuberculosis, the test indicated tuberculosis in 5% of the subjects, and indicated no tuberculosis in the remaining 95%. If a single subject is selected at random, find the following probabilities:
 - a) $P(\text{has tuberculosis and tested positive})$
 - b) $P(\text{tested positive})$
 - c) $P(\text{tested positive} / \text{has tuberculosis})$
 - d) $P(\text{has tuberculosis} / \text{tested positive})$
 - e) $P(\text{does not have tuberculosis} / \text{tested positive})$
 - f) $P(\text{does not have tuberculosis} / \text{tested negative})$
 - g) $P(\text{has tuberculosis} / \text{tested negative})$
 - h) $P(\text{has tuberculosis or tested positive})$

question	1	2	3	4	5
points	1	1,5	2	2	3,5

