

Binomial Probabilities

- 1) Twenty-five percent of all Americans have a cellular phone. If 10 Americans are selected at random, find the probability that 4 of them have a cellular phone.
- 2) According to the 1998 Health and Human Services' National Household Survey on Drug Abuse, 18% of children between the ages of 12 and 17 are cigarette smokers. If 8 children between the ages of 12 and 17 are selected randomly, find the probability that 2 of them are cigarette smokers.
- 3) The probability that a college student works to earn extra money is 0.65. If ten college students are selected at random, find the probability that at least seven work to earn extra money.
- 4) According to Cruise Lines International Corporation, 28% of the North Americans who have taken a cruise in the past five years were at least 60 years old. If twelve North Americans who have taken a cruise in the last five years are selected at random, find the probability that at least one of them was at least 60 years old at the time.
- 5) The probability that a high school student who takes the SAT has a combined score of 1290 or higher is 0.1. If 15 high school students who took the SAT are randomly selected, find the probability that between 2 and 5 students scored 1290 or above, inclusive.
- 6) According to the Associated Press, in 1998 20% of the people in Mississippi did not have health insurance. If eight people from Mississippi were selected at random, find the probability that 1, 2 or 3 of them did not have health insurance.
- 7) A couple plans to have six children. Assuming that the probability that a child is a girl is 0.5, find the probability that the couple has at least 3 girls.
- 8) A recent study showed that 60% of K-12 teachers are happy with their job. If 9 teachers are selected at random, find the probability that at least two of them are not happy with their job.
- 9) 20% of Americans age 18 and over hold a bachelor's or higher degree. If seven Americans age 18 and over are selected at random, find the probability that at least one does not have a bachelor's or higher degree.