Binomial Probability
Contemporary Math (MAT-130)

If a coin is tossed four times, find the probability of each number of heads.

1. 0   2. 1   3. 2   4. 3   5. 4

For n trials with a probability of success p, find the probability of exactly x succeses.

6. $n = 4, p = .35, x = 1$
7. $n = 12, p = \frac{1}{3}, x = 5$
8. $n = 15, p = .8, x = 11$
9. $n = 17, p = \frac{2}{5}, x = 8$

Solve each probability problem.

10. A doctor has six sick patients. He knows that the cure rate for the disease is 80%. What is the probability that at least half of his patients will be cured?
11. Jim is taking a 10 question true/false test. What is the probability of Jim passing (7 or more correct) if he chooses each answer randomly?
12. Approximately 56% of college students in the United States graduate within six years. For a group of four incoming freshmen, what is the probability all of them will graduate within six years?
13. The probability that a person will follow their New Year's resolution is 0.12. For a group of twenty people making New Year's resolutions find the probability that less than two follow their resolution.
14. 76% of American commuters drive to work alone. Find the probability that in an office of 15 commuters more than 3 don't drive by themselves.
15. In Sweden 20% of all road accidents involve elk. In a group of 12 road accident find the probability that at least 3 involved an elk.
16. In Monopoly, if a player goes to jail, they have three chances to roll doubles to get out of jail. What is the probability of rolling doubles at least once if two fair dice are rolled three times?

Solutions:

1. 0.0625
2. 0.25
3. 0.375
4. 0.25
5. 0.0625
6. 0.384
7. 0.191
8. 0.188
9. 0.161
10. 0.983
11. 0.172
12. 0.098
13. 0.289
14. 0.502
15. 0.442
16. 0.421