Binomial Distribution

Worksheet

1. Compute the probability of X successes, using the binomial formula.
   (a) n = 5, X = 2, p = 0.025
   (b) n = 12, X = 6, p = 0.45
   (c) n = 6, X = 0, q = 0.35
   (d) n = 45, X = 10, p = 0.25
   (e) n = 22, X = 20, p = 0.68

2. Compute the probability of X successes given n = 12 and p = 0.45 using the binomial formula.
   (a) P(X = 6)
   (b) P(X≥9)
   (c) P(X<4)
   (d) P(4 <X<7)
   (e) P(5<X<7)

3. A student randomly guesses at 10 multiple choice questions. Each question has four possible answers with only one being correct, and each is independent of every other question.
   (a) Find the probability that the student guesses EXACTLY 4 correct.
   (b) Find the probability of guessing less than 3 correctly.
   (c) Find the probability of guessing more than 8 correctly.
   (d) Find the probability of guessing between 4 and 6 inclusively.

4. In a Gallop Poll conducted January 30 – February 2, 2008, 43% of 18-29 year olds said that they were worried about retirement. Find the probability that out of 15 college students ages 18 – 19:
   (a) Exactly 1 worried about retirement.
   (b) Fewer than 5 worried about retirement.
   (c) At least 10 worried about retirement.
   (d) Between 8 and 10 inclusively are worried about retirement.

5. In a Gallop Poll, 35% of 30-49 year olds stated they believe in ghosts. Find the probability that out of 16 college students aged 30 – 49:
   (a) Exactly 5 said they believed in ghosts.
   (b) Exactly 5 said they do not believe in ghosts.
   (c) At least 4 believe in ghosts.
   (d) At least 4 do not believe in ghosts.