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<u>></u>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.
- 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.