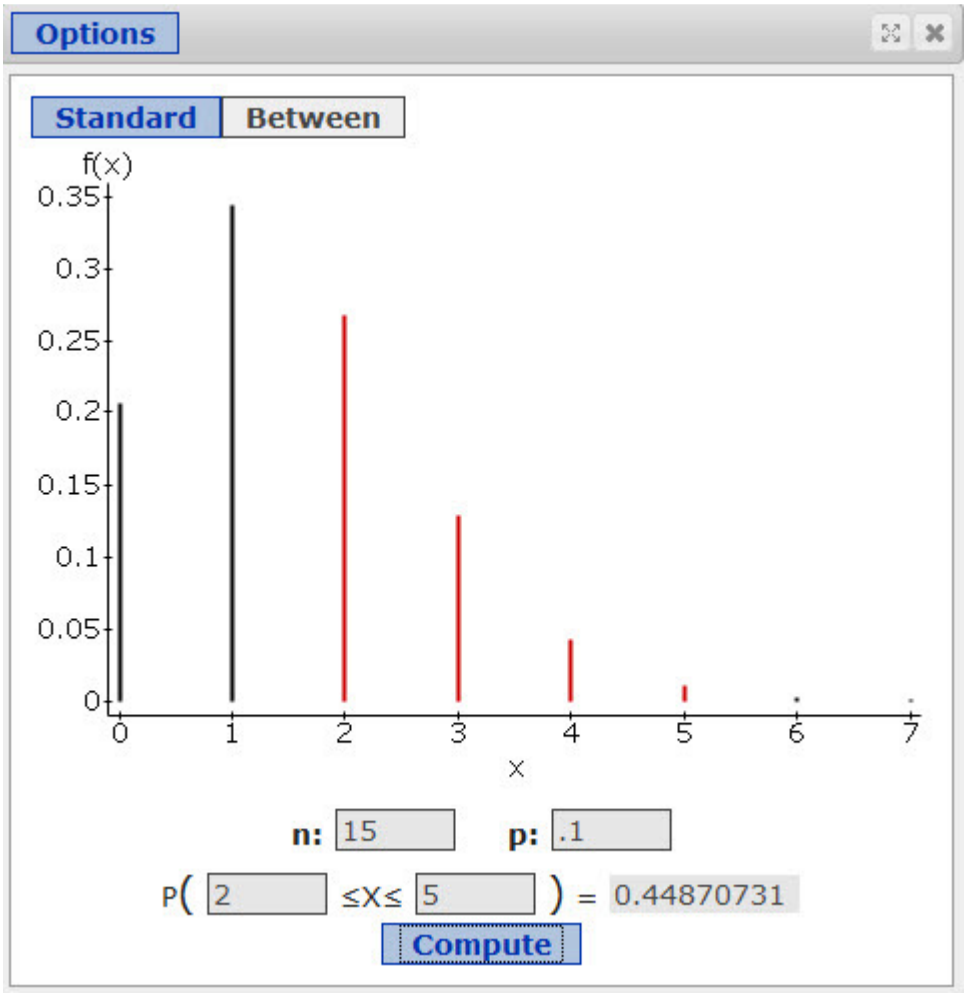
Getting Ready for the Midterm – Chapter 6

Practice Problems – Answer Key

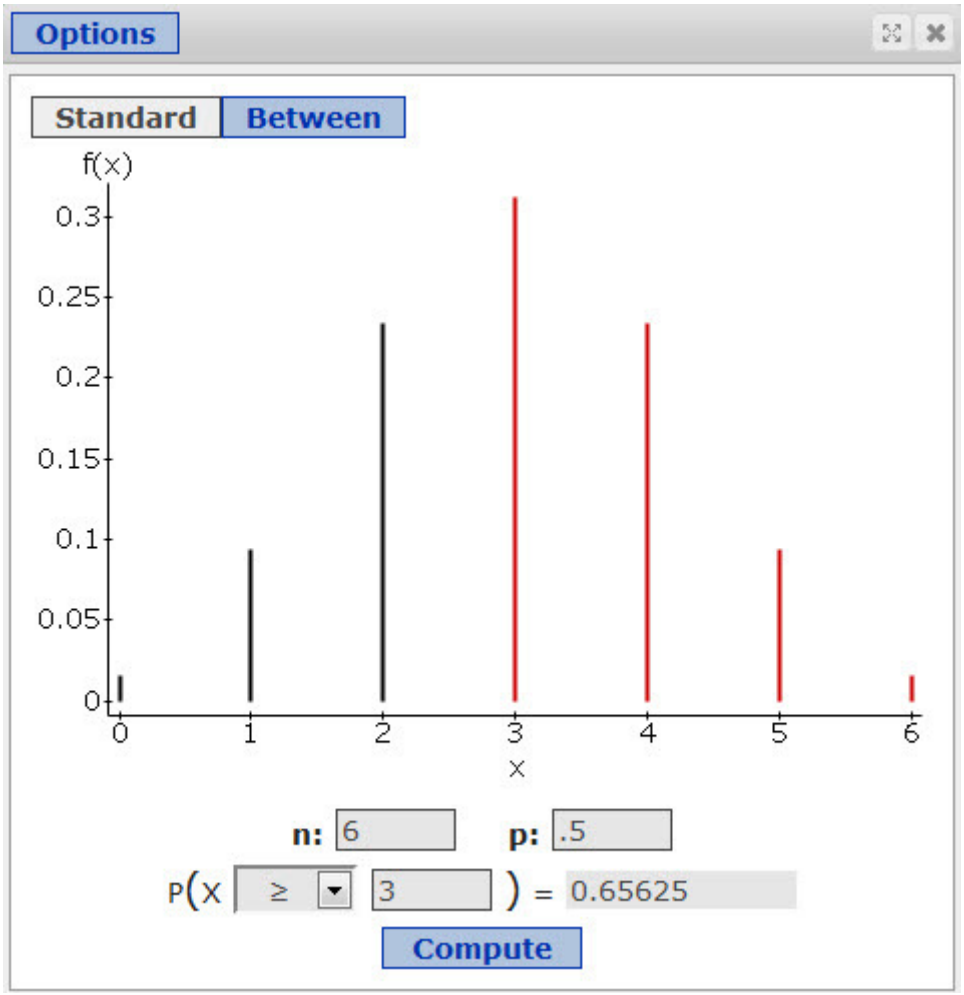
1) The probability that a high school student who takes the SAT has a combined score of 1290 or higher is 0.1. If 15 high school students who took the SAT are randomly selected, find the probability that between 2 and 5 students scored 1290 or above, inclusive.

Binomial: n = 15, x between 2 & 5, p = 0.1



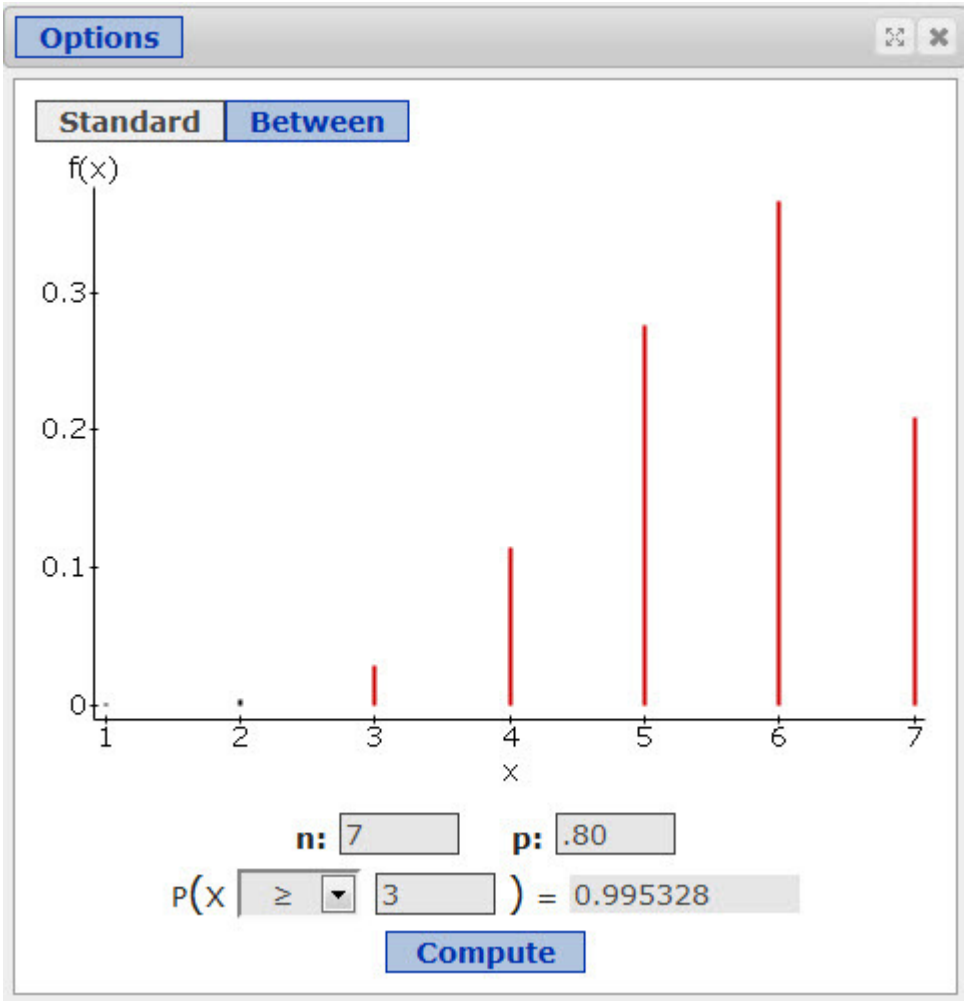
2) A couple plans to have six children. Assuming that the probability that a child is a girl is 0.5, find the probability that the couple has at least 3 girls.

Binomial: n = 6, x ≥ 3, p = 0.5



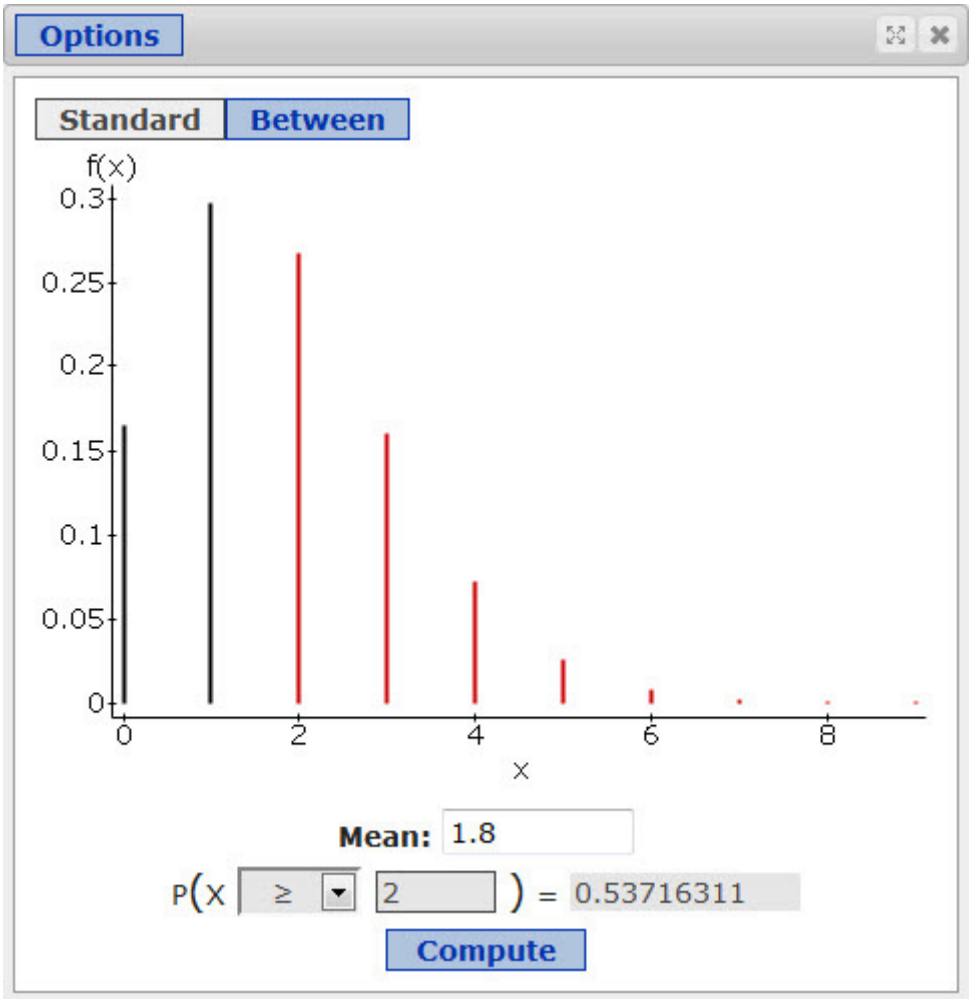
3) 20% of Americans age 18 and over hold a bachelor's or higher degree. If seven Americans age 18 and over are selected at random, find the probability that at least 3 do not have a bachelor's or higher degree.

Binomial: n = 7, x ≥ 3, p = 0.80 (Switch 20% to 80% because we are counting the people who do not have a degree.)



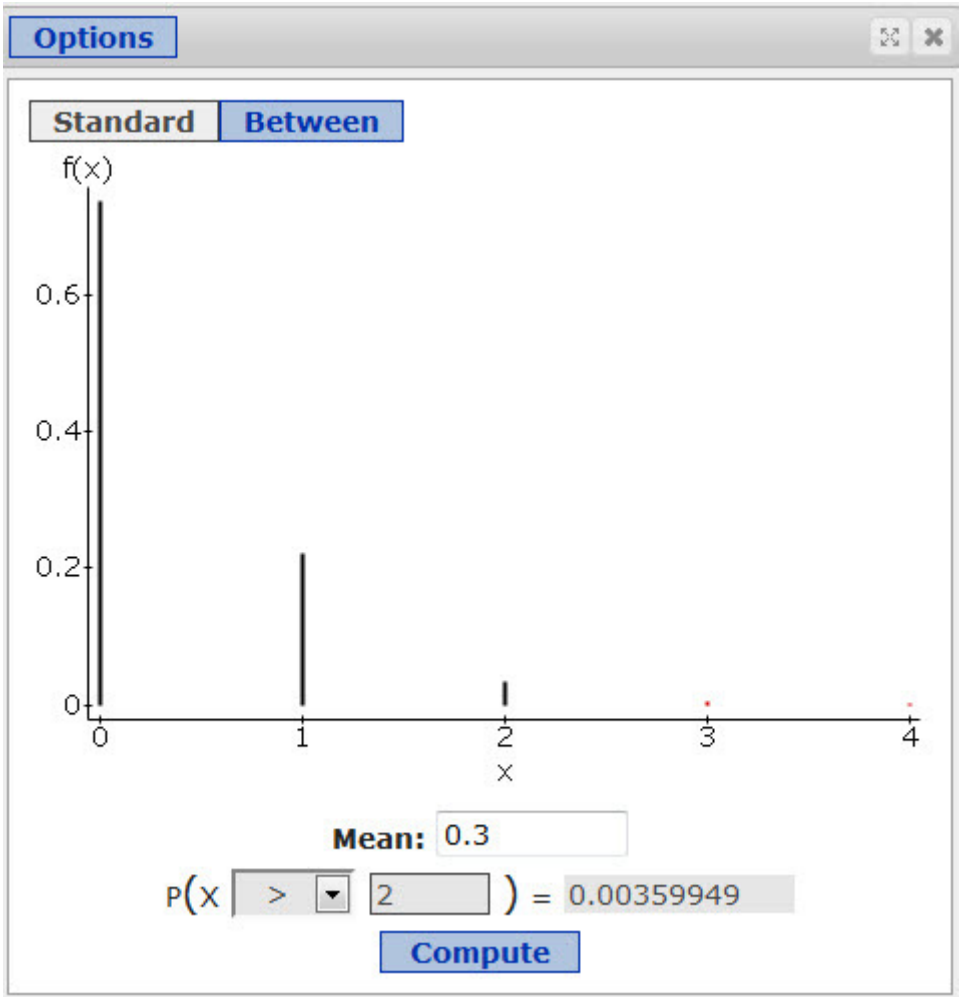
4) During a semester at the university, there is an average of 1.8 students from the Lambda Lambda Lambda fraternity on the Dean's List. Find the probability that at least two students from the fraternity make the Dean's List this semester.

Poisson: lambda = 1.8 students/semester, t = 1 semester, mu = 1.8 students, x ≥ 2



5) The number of teachers absent at an elementary school follows a Poisson distribution with a mean of 0.3 absences per day. If the school has 2 substitute teachers available, find the probability that the school will be understaffed on a given day.

Poisson: lambda = 0.3 absences/day, t = 1 day, mu = 0.3 absences, x > 2



6) On a typical day at a small town hospital, 3 mothers give birth. Find the probability that there are at least 10 births in the next two days at the hospital.

Poisson: lambda = 3 births/day, t = 2 days, mu = 6 births, x ≥ 10