DISCRETE RANDOM VARIABLES: PRACTICE 2; BINOMIAL DISTRIBUTION

STUDENT LEARNING OUTCOMES:

- THE STUDENT WILL PRACTICE CONSTRUCTING BINOMIAL DISTRIBUTIONS.

GIVEN:

The Higher Education Research Institute at UCLA surveyed more than 263,000 incoming freshmen from 385 colleges. 36.7% of first-generation college students expected to work full-time while in college. (Source: Eric Hoover, *The Chronicle of Higher Education*, 2/3/2006).

ORGANIZE THE DATA

Suppose that you randomly pick 8 college freshmen from the survey. You are interested in the number that expects to work full-time while in college.

1. In words, define the Random Variable X.

2. X ~ _____

3. X takes on the values: _____

4. Construct the probability distribution function (PDF) for X.

x	P(X=x)

5. On average (μ), how many would you expect to answer "yes"?

6. What is the standard deviation (σ) ?

7. What is the probability that at most 5 of the freshmen expect to work full-time?

8. What is the probability that at least 2 of the freshmen expect to work full-time?

9. Construct a histogram or plot a line graph.
Label the horizontal and vertical axes with words. Include numerical scaling.