## DISCRETE RANDOM VARIABLES: PRACTICE 2; BINOMIAL DISTRIBUTION

## **STUDENT LEARNING OUTCOMES:**

• THE STUDENT WILL PRACTICE CONSTRUCTING BINOMIAL DISTRIBUTIONS.

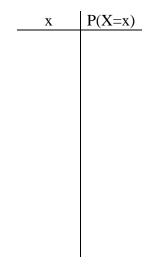
## GIVEN:

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.



5. On average $(\mu)$ , how many would you expect to answer "yes"?	
6. What is the standard deviation ( $\sigma$ )?	
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.	