

Pledge:

3/2/2006
Dr. Lunsford

MATH171 – Statistical Decision Making
Quiz 5

Name: Sullivan
20 Points Total

I. A Gallup Poll was conducted on February 18-26, 2006, to determine the proportion of New Orleans residents who approve of the way Mayor Nagin handled the response to the effects of Hurricane Katrina. For a random sample of 804 adults, aged 18 and older, who are currently living in the city of New Orleans, let X be the number in the sample who approve, and \hat{p} be the proportion of sample that approve. Suppose the actual percent of New Orleans residents who approve is 45%. Please answer the following questions: (16 points total)

(a) If 386 adults in the sample said they approved, then please complete the table below. (7 points)

Symbol	Parameter or Statistic? (write the correct answer in the blank)	Numerical value of the symbol for <i>this</i> sample:
X	Statistic	386
\hat{p}	Statistic	.48
p	Parameter	.45
n	Sample Size	804

(b) The variable X is binomial (yes I am telling you this ☺!) with what parameters? (2 points)

$$n = 804 \quad p = .45$$

(c) How likely is it (or “what is the probability”) that a random sample of 804 adults will have at least 386 adults who approve? Be sure to write this probability in terms of the variable X and show all calculator input for your computation. Please write your answer using a complete English sentence. (5 points)

$$\begin{aligned} Pr(X \geq 386) &= 1 - P(X < 386) = 1 - Pr(X \leq 385) \\ &= 1 - \text{binomcdf}(804, .45, 385) = .0466 \end{aligned}$$

There is a 4.6% chance that a random sample of 804 adults will contain 386 or more adults who approve (if the true proportion who approve is .45).

(d) On average, about how many voters in the sample will favor the candidate? (2 points)

people in the sample will approve?

$$\mu_X = np = 804(.45) = \boxed{361.8}$$

Answers to Multiple Choice: 1 (b), 2 (b)