

Quiz 6Math 1040-1
July 20, 2012

Name: _____

Directions: Show all work for full credit. Clearly indicate all answers. Simplify all mathematical expressions completely. Unless otherwise directed, give each decimal approximation rounded to at least three decimal places.

Formulas

$$\sigma = \sqrt{npq} \quad (\text{for a Binomial Distribution})$$

$$r = \frac{n \sum(xy) - (\sum x)(\sum y)}{\sqrt{n \sum(x^2) - (\sum x)^2} \sqrt{n \sum(y^2) - (\sum y)^2}}$$

1. A survey of U.S. adults found that 35% say their favorite sport is professional football. You randomly select 150 adults and ask them if their favorite sport is professional football.

(a) Can you use a normal distribution to approximate this binomial distribution? Why or why not? (5 points)

(b) Using the normal approximation, find the probability that more than 40 people say their favorite sport is professional football. (15 points)

(c) Using the normal approximation, find the probability that between 50 and 60 people, inclusive, say their favorite sport is professional football. (15 points)

2. The number of hours 5 students spent studying for a test and their test scores on that test are:

Hours spent studying, x	0	2	4	6	8
Test score, y	40	51	48	68	95

- (a) Calculate the correlation coefficient, r . (20 points)

- (b) Is the linear correlation positive or negative, or is there no linear correlation? Explain your answer. (5 points)