

## Math 345

### Quiz 2

Show all work in a neat and organized fashion. Clearly indicate your answers.  
10 points possible.

1. (2 pts.) Are the two events below mutually exclusive for a single experiment?

(a) Spinning a roulette wheel and getting an outcome of 7.

(b) Spinning a roulette wheel and getting an even number.

2. (3 pts.) Problems of sexual harassment have been given much more attention in recent years. In one survey, 420 workers (240 of whom are men) considered a friendly pat on the shoulder to be a form of harassment, whereas 580 workers (380 of whom are men) did not consider that to be a form of harassment (based on data from Bruskin/Goldring Research). If one of the surveyed workers is randomly selected, find the probability of getting someone who does not consider a pat on the shoulder to be a form of harassment.

3. (2 pts.) As an insurance claims investigator, you are suspicious of 4 brothers who each reported a stolen car in a different region of Houston. If Houston has an annual car-theft rate of 4.5%, find the probability that among 4 randomly selected cars, all are stolen in a given year.

4. (3 pts.) A blood-testing procedure is made more efficient by combining samples of blood specimens. If samples from 4 people are combined and the mixture tests negative, we know that all 4 individual samples are negative. Find the probability of a positive result for 4 samples combined into 1 mixture, assuming the probability of an individual blood sample testing positive is 0.025.