

AP Statistics
Chapters 18 – 22 Review Before Test Corrections

On separate paper answer each question.

1. A school counselor wants to know how smart the students in her school are. She gets funding from the principal to give an IQ test to a Simple Random Sample of 60 of the over 1000 students in the school. The mean IQ score was 114.98 and the standard deviation was 14.80.
 - a. Determine the mean and standard deviation
 - b. What proportion of the time will a student earn a 119 or higher (Draw and shade the normal curve)
 - c. What proportion of the time will a student earn between a 112 and 116 (Draw and shade the normal curve)

2. A random digit dialing telephone survey of 880 drivers asked, “Recalling the last ten traffic lights you drove through, how many of them were red when you entered the intersections? Of the 880 respondents, 171 admitted that at least one light had been red.
 - a. Determine a 98% confidence interval
 - b. What is the probability that out of 24 people called, only 3 people admitted to running a red light?
 - c. What sample size would you need if you want a 95% confidence level with a margin of error of 2%.

3. According to the National Campaign to Prevent Teen and Unplanned Pregnancy, 20% of teens aged 13 to 19 say that they have sent or posted sexually suggestive images of themselves. The counselor at a large high school worries that the figure might be higher at her school. To find out, she administers an anonymous survey to a random sample of 250 of the schools’ 2800 students. All 250 responded, and 63 admitted to sending or posting sexual images. Use a hypothesis test to determine if the counselor’s worries are correct

4. A drug manufacturer claims that less than 10% of patients who take its new drug for treating Alzheimer’s disease will experience nausea. To test this claim, researchers conduct an experiment. They give the new drug to a random sample of 300 out of 5000 Alzheimer’s patients whose families have given informed consent for the patients to participate in the study. In all, 25 of the subjects experienced nausea. Use a hypothesis test to determine if the manufacturer’s claim of less than 10% experience nausea is accurate.

5. A University of Illinois study on aggressive behavior surveyed a random sample of 558 middle school students. When asked to describe their behavior in the last 30 days, 445 students said their behavior included physical aggression, social ridicule, teasing, name-calling, and issuing threats. This behavior was not defined as bullying in the questionnaire. Is this evidence that more than three-quarters of middle school students engage in bullying behavior?

6. As part of the Pew Internet and American Life Project, researchers conducted two surveys in 2012. The first survey asked a random sample of 799 US teens about their use of social media and the internet. A second survey posed similar questions to a random sample of 2253 US adults. In these two studies, 80% of teens and 69% of adults used social-networking sites.
- Determine the mean difference between adults and teens
 - Determine the standard deviation for the difference between adults and teens
 - Draw and label a normal curve for the sample
 - Determine a 95% confidence level
 - Determine if there is evidence that teens always use social media than adults. Explain
7. “Would you marry a person from a lower social class than your own?” Researchers asked this question of a random sample of 385 black, never-married college students. Of the 149 men in the sample, 91 said “Yes”. Among the 236 women, 117 said “Yes”.
- Determine the appropriate mean
 - Determine the standard deviation
 - Determine the 95% confidence interval
 - Is there proof that men would marry out of their social class more frequently than women?