

Hypothesis Testing

1-Sample

- 1. Marriage:** In 1960, census results indicated that the age at which American men first married had a mean of 23.3 years. It is widely suspected that young people today are waiting longer to get married. We want to find out if the mean age of first marriage has increased during the past 40 years. A random sample of 40 men was found to have an average age of first marriages of 24.2 years, and a standard deviation of 5.3 years.
 - a.) Test the appropriate hypothesis to determine if the average age of first marriages has risen in the past 40 years.
- 2. AP Stats:** The College Board reported that 60% of all students who took the 2004 AP Statistics exam earned scores of 3 or higher. One teacher wondered if the performance of her school was different. She believed that year's students to be typical of those who will take AP Stats at that school and was pleased when 65% of her 54 students achieved scores of 3 or better. Can she claim her school is different? Explain. (in other words, test an appropriate hypothesis)
- 3. Portable phones:** A manufacturer claims that a new design for a portable phone has increased the range to 150 feet, allowing many customers to use the phone throughout their homes and yards. An independent testing laboratory found that a random sample of 44 of these phones worked over an average distance of 142 feet, with a standard deviation of 12 feet. Is there evidence that the manufacturer's claim is false?
- 4. Lost Luggage** An airline's public relations department says that the airline rarely loses passengers' luggage. It further claims that on those occasions when luggage is lost, 90% is recovered and delivered to its owner within 24 hours. A consumer group who surveyed a large number of air travelers found that only 103 of 122 people who lost luggage on that airline were reunited with the missing items by the next day. Does this cast doubt on the airline's claim? Explain. (yep....that means test an appropriate hypothesis)
- 5. Dowsing:** In a rural area only about 30% of the wells that are drilled find adequate water at a depth of 100 feet or less. A local man claims to be able to find water by "dowsing"—using a forked stick to indicate where the well should be drilled. You check with 80 of his customers and find that 27 have wells less than 100 feet deep. What do you conclude about his claim? Test an appropriate hypothesis and state your conclusion.