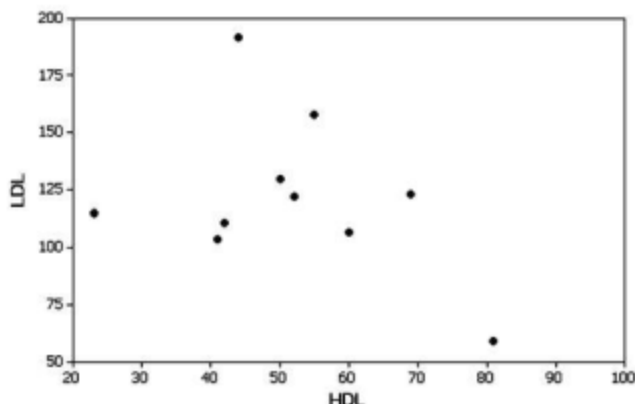


5. a. 543 (Tech: 542) b. 247 (Tech: 246) c. 543
6. $61.5\% < p < 66.5\%$. Because the entire confidence interval is above 50%, we can safely conclude that the majority of adults consume alcoholic beverages.
7. $-22.1 \text{ sec} < \mu < 308.1 \text{ sec}$
8. $6.54 < \mu < 7.76$. Because women and men have some notable physiological differences, the confidence interval does not necessarily serve as an estimate of the mean white blood cell count of men.
9. $37.5 \text{ g} < \mu < 47.9 \text{ g}$. There is 95% confidence that the limits of 37.5 g and 47.9 g contain the true mean deceleration measurement for all small cars.
10. $3.6 \text{ g} < \sigma < 12.3 \text{ g}$

Chapter 7: Cumulative Review Exercises

1. $\bar{x} = 5.5$; median = 5.0; $s = 3.8$
2. The range of usual values is from -2.1 to 13.1 (or from 0 to 13.1).
3. Ratio level of measurement; discrete data.
4. 33 campuses
5. $3.6 < \mu < 7.4$. The population should include only colleges of the same type as the sample, so the population consists of all large urban campuses with residence halls.
6. The graphs suggest that the population has a distribution that is skewed (to the right) instead of being normal. The histogram shows that some taxi-out times can be very long, and that can occur with heavy traffic, but little or no traffic cannot make the taxi-out time very low. There is a minimum time required, regardless of traffic conditions. Construction of a confidence interval estimate of a population standard deviation has a strict requirement that the sample data are from a normally distributed population, and the graphs show that this strict normality requirement is not satisfied.
7. a. $0.560 < p < 0.620$ (or $0.560 < p < 0.621$ if using $x = 592$)
b. Because the survey was about shaking hands and because it was sponsored by a supplier of hand sanitizer products, the sponsor could potentially benefit from the results, so there might be some pressure to obtain results favorable to the sponsor.
c. 1083
8. There does not appear to be a correlation between HDL and LDL cholesterol levels.



9. a. 13.35% (Tech: 13.32%). Yes, losing about 13% of the market would be a big loss.
b. 160.2 mm; 189.8 mm
10. a. 1/1000 b. 999/1000 c. 0.990

Chapter 8

Section 8-2

1. Rejection of the aspirin claim is more serious because the aspirin is a drug treatment. The wrong aspirin dosage can cause adverse reactions. M&Ms do not have those same adverse reactions. It would be wise to use a smaller significance level for testing the aspirin claim.
3. a. $H_0: \mu = 98.6^\circ\text{F}$ b. $H_1: \mu \neq 98.6^\circ\text{F}$
c. Reject the null hypothesis or fail to reject the null hypothesis.
d. No. In this case, the original claim becomes the null hypothesis. For the claim that the mean body temperature is equal to 98.6°F , we can either reject that claim or fail to reject it, but we cannot state that there is sufficient evidence to support that claim.
5. a. $p = 0.2$ b. $H_0: p = 0.2$ and $H_1: p \neq 0.2$
7. a. $\mu \leq 76$ b. $H_0: \mu = 76$ and $H_1: \mu > 76$
9. There is not sufficient evidence to warrant rejection of the claim that 20% of adults smoke.
11. There is not sufficient evidence to warrant rejection of the claim that the mean pulse rate of adult females is 76 or lower.
13. $z = 10.33$ (or $z = 10.35$ if using $x = 909$)
15. $\chi^2 = 8.110$
17. $P\text{-value} = 0.0228$. Critical value: $z = 1.645$.
19. $P\text{-value} = 0.0802$ (Tech: 0.0801). Critical values: $z = -1.96$, $z = 1.96$.
21. $P\text{-value} = 0.2186$ (Tech: 0.2187). Critical values: $z = -1.96$, $z = 1.96$.
23. $P\text{-value} = 0.0013$. Critical value: $z = -1.645$.
25. a. Reject H_0 .
b. There is sufficient evidence to support the claim that the percentage of blue M&Ms is greater than 5%.
27. a. Fail to reject H_0 .
b. There is not sufficient evidence to warrant rejection of the claim that women have heights with a mean equal to 160.00 cm.
29. a. $H_0: p = 0.5$ and $H_1: p > 0.5$ b. $\alpha = 0.01$
c. Normal distribution. d. Right-tailed.
e. $z = 1.00$ f. $P\text{-value}: 0.1587$ g. $z = 2.33$ h. 0.01
31. Type I error: In reality $p = 0.1$, but we reject the claim that $p = 0.1$. Type II error: In reality $p \neq 0.1$, but we fail to reject the claim that $p = 0.1$.
33. Type I error: In reality $p = 0.5$, but we support the claim that $p > 0.5$. Type II error: In reality $p > 0.5$, but we fail to support that conclusion.
35. The power of 0.96 shows that there is a 96% chance of rejecting the null hypothesis of $p = 0.08$ when the true proportion is actually 0.18. That is, if the proportion of Chantix users who experience abdominal pain is actually 0.18, then there is a 96% chance of supporting the claim that the proportion of Chantix users who experience abdominal pain is greater than 0.08.
37. 617