

## Chapter 2 Practice Problems

*Open Intro*

P56 #2.5, 2.7, 2.9, 2.11, 2.13, 2.15, 2.17

P77 #2.27, 2.29, 2.31, 2.33

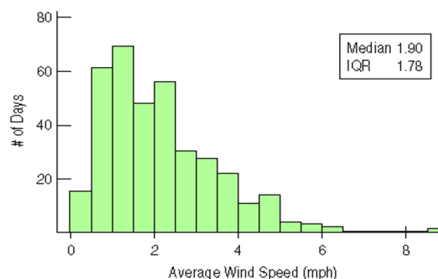
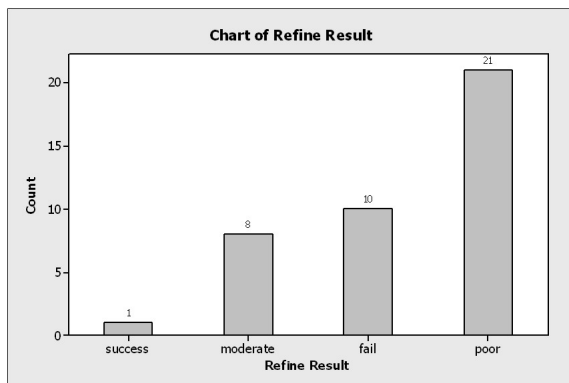
*Historical Course Pack*

P.22 #5, 7, 9

P.42 # 17,23,27,31,41

1. For each of the following, identify whether the number in bold represents a population parameter or a sample statistic.
  - (a) A brokerage firm reported that the mean dividend paid by all Fortune 500 companies for the year 2010 was **\$0.63**
  - (b) NASA reported that the mean time for all spacewalks at the International Space Station was **45min**
  - (c) A recent study indicated that more people today are rising before 6am each weekday to prepare for work and to help children get ready for school. In a random sample of 500 adults, **42 %** said they get up each weekday before 6am.
  - (d) A consumer magazine tested a random sample of 19 green teas for taste and health benefits. The mean cost per cup of tea was reported to be **14 cents**.
2. The lengths of the reigns of 50 British monarchs (in years) are summarized below. If the maximum of 63 years is accidentally recorded as 630 years, how will this affect the mean?  $x_{min} = 0$ ,  $Q_1 = 6$ ,  $median = 15.5$ ,  $Q_3 = 24$ ,  $x_{max} = 63$ ,  $\bar{x} = 18.92$ 
  - (a) The mean will increase.
  - (b) The mean will decrease.
  - (c) The mean will be unchanged.
  - (d) It is impossible to determine without having complete data.
3. Concerning numeric data, a left skewed distribution has: (select an answer)
  - (a) most of the data concentrated in the lower values with relatively fewer larger values
  - (b) most of the data concentrated in the higher values with relatively fewer lower values.
  - (c) a positive amount of values skewed across the center.
  - (d) an equal amount of large and small values.
4. Fill in the blanks
  - (a) A numeric data set is \_\_\_\_if the set of all possible values is an interval of numbers
  - (b) A numeric data set is \_\_\_\_if the set of all possible values is finite.
  - (c) \_\_\_\_divide the data into four parts.
  - (d) A \_\_\_\_measures the number of standard deviations a value lies from the mean.

- (e) A value in a data set that is outside the outer fence is considered a(n) \_\_\_\_
- (f) The sample mean is \_\_\_\_ to outliers.
- (g) If an outlier is added to a data set, the sample standard deviation will get \_\_\_\_
- (h) A \_\_\_\_ is a graph that represents the 5-number summary.
5. Amanda delivers documents in midtown Manhattan. her clients would like to be able to depend on a consistent deliver time schedule. One particular client kept careful track of the delivery times (in minutes) for documents delivered by Amanda. The data are: 4 5 6 10 15 17 18 22 25 29
- (a) Calculate each of the following
- (i) mean      (ii) median      (iii) range      (iv) standard deviation
- (v) variance      (vi)  $Q_1$       (vii)  $Q_3$       (viii) IQR
- (b) Check the data for any outliers. Be sure to classify each as a mild or extreme outlier.
- (c) Draw a boxplot of the data and describe its shape.
6. This bar chart summarizes the results from a test on a new refining technique for silver. A “fail” or “poor” result is unacceptable whereas a result of “moderate” or “success” is acceptable. According to the chart, what proportion of the results were unacceptable?



7. The histogram above displays the average wind speed from every day in 1989. Describe the shape of the distribution (symmetry? peaks? outliers? spread?).
8. Find the locations of the median and quartiles for a data set that has (a)  $n = 12$  (b)  $n = 15$
9. Tankin’ U Fluid Solutions is a small trucking company. The revenue follows a normal distribution for each job with mean \$ 900 and standard deviation \$ 170.
- (a) What proportion of jobs bring in between \$ 560 and \$ 1240 in revenue?
- (b) What percent of jobs bring in more than \$1410?

- (c) What is the cutoff value (in \$) for jobs that bring in revenue in the lowest 16%?
- (d) What range of revenue includes 99.7% of jobs?