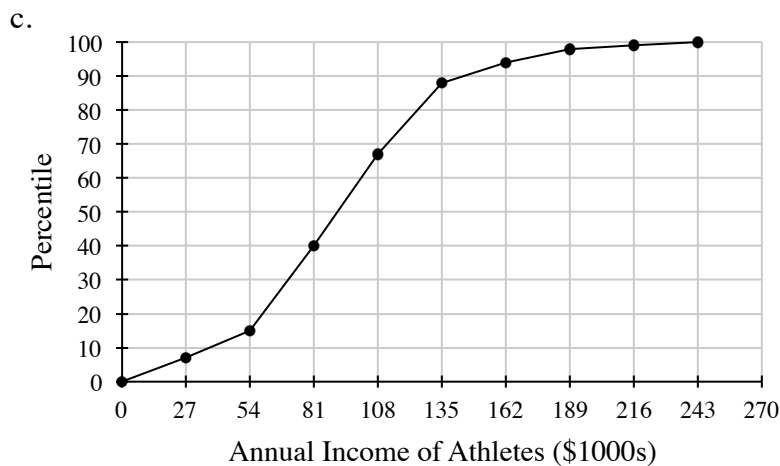
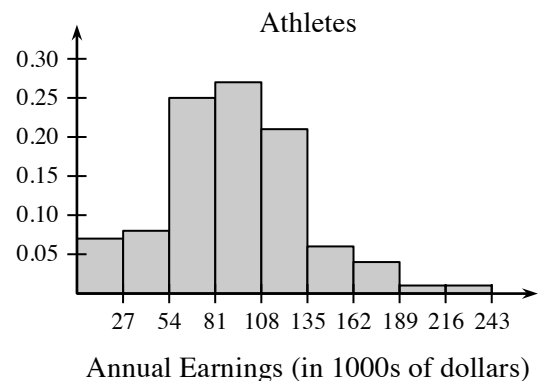


Lesson 1.3.1

- 1-57. a. 100 non-athletes, 100 athletes
 b. Answers may vary: non-athletes \$0, 68, 95, 108, 243; athletes \$0, 68, 95, 122, 243
 c. non-athletes 20%, athletes 15%
 d. About 99% for both.
- 1-58. a. Answers may vary. Some examples include: Is 55 a good score? What is the mean score? What is the median score? Is a high number better than a low score? What is the best score so far?
 b. Yes, it is possible. However it seems unlikely that the top score is 84 and there are no team scores between 84 and 55 if the average is 45.
 c. 82nd
 d. number outscored = $300(0.82) = 246$ teams so $300 - 246 = 54$ teams did better.
 e. 25 points
 f. 0, 33, 42, 52, 84

- 1-59. a. See graph at right.
 b. The relative frequency histogram is the same as its corresponding histogram except the values of the y-axis change to decimal proportions.



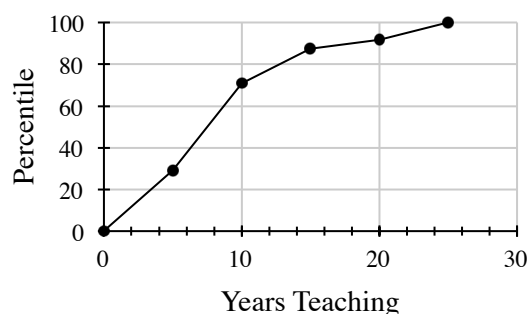
- d. approximately 60th percentile; \$40,000; \$140,000

1-60. a. 24

b. $\frac{7}{24}$

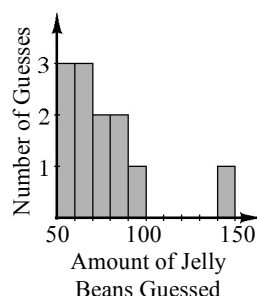
c.

Years Teaching	Teachers (f)	Cumulative Relative f
0 - 5	7	0.2917
5 - 10	10	0.7083
10 - 15	4	0.875
15 - 20	1	0.9167
20 - 25	2	1
total	24	

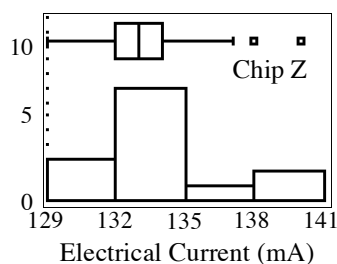
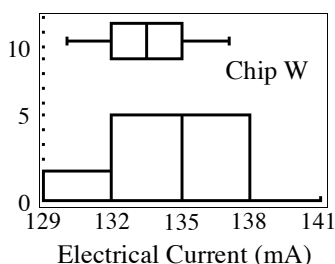


d. $Q1 = 4, Q3 = 11, IQR = 7$ years

1-61.



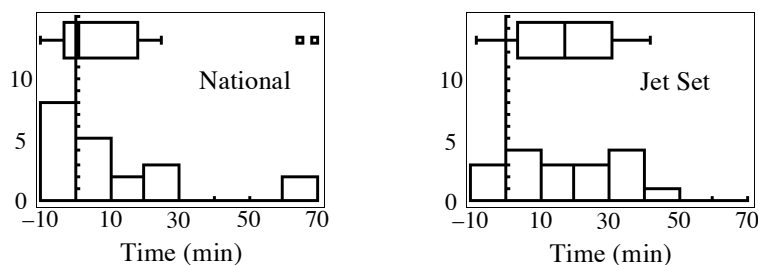
1-62. a.



The IQR for W is more than for Z because the middle of the boxplot for W is wider. The standard deviation for Z is greater because overall, including the outliers, the data for Z is spread out more than for W. Since mean is impacted by outliers more than median, the standard deviation (which is based on mean) is impacted by more by the outliers in Z. Mean and standard deviation are not appropriate for Z because the shape is skewed and there are outliers.

b. Chip Z appears to be the more energy efficient. It has a lower median use of current. Also, for most of the data sets tested, chip Z uses the same or slightly less current than chip W. Z has smaller IQR: it is more consistent in current usage. However, all these benefits may be offset by the two high outliers in Z which might indicate a reliability problem.

1-63. a.



Median delay for Jet Set is about 16 minutes longer than for National. National's delays were skewed with a peak at about -5 minutes, meaning they had a lot of flights that left early or had only a little delay, while Jet Set's delays were uniformly distributed. Jet Set had more variability in delays than National did; the IQR for Jet Set's delays was 6 minutes wider than for National's IQR. National did have two extreme outliers. Even though National had two very large delays in the last couple weeks, their overall performance makes them more "on time" than Jet Set. Jet Set's claims are misleading because they focused only on the outliers rather than on overall performance.

- b. Although the distribution for Jet Set is symmetric with no outliers, National is skewed with outliers. Since he wants to compare data, he needs to use the same statistics for both airlines. Arin must use median and IQR. Median delay for National is 1 minute with an IQR of 21 minutes, while Jet Set has median delay of 17 minutes with an IQR of 27 minutes.