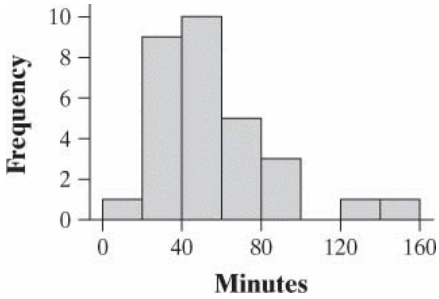


# Chapter 1 Practice Test Answers

1. D   2. E   3. B   4. B.   5. C   6. C   7. B   8. C   9. E   10. B   11. D

12. (a) Here is a histogram.



(b) The first quartile is the median of the bottom 15 data points, or the 8th data value. Therefore, it is 30 minutes. The third quartile is the 23rd data point (the median of the top 15 data points), which is 77. So  $IQR = 77 - 30 = 43$ . Any point below  $30 - 1.5(43) = -34.5$  or above  $77 + 1.5(43) = 141.5$  is an outlier. So the observation of 151 minutes is an outlier. (c) It would be better to use the median and  $IQR$  to describe the center and spread of this distribution because it is skewed to the right.

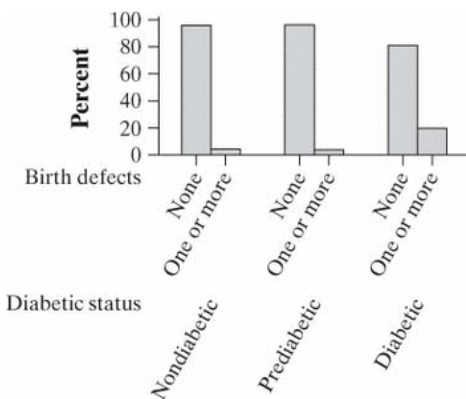
13. (a)

Birth Defects	Diabetic Status			Total
	Nondiabetic	Prediabetic	Diabetic	
None	754	362	38	1154
One or more	31	13	9	53
<b>Total</b>	<b>785</b>	<b>375</b>	<b>47</b>	<b>1207</b>

(b)

Birth Defects	Diabetic Status		
	Nondiabetic	Prediabetic	Diabetic
None	96.1%	96.5%	80.9%
One or more	3.9%	3.5%	19.1%

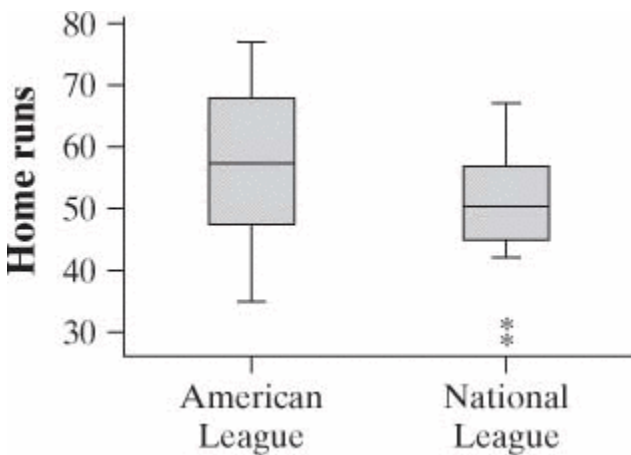
(c) Here is a bar graph.



**(d)** There does appear to be an association. Nondiabetics and prediabetics appear to have babies with birth defects at about the same rate. However, women with diabetes have a much higher rate of babies with birth defects.

14. **(a)** The longest that any battery lasted was between 550 and 559 hours. **(b)** Someone might prefer to use Brand X because it has a higher minimum lifetime. **(c)** On the other hand, some might prefer Brand Y because it has a higher median lifetime.

15. Side-by-side boxplots. Given below are descriptive statistics for both the American League and the National League.



Variable	N	Mean	St. dev.	Min.	Q <sub>1</sub>	M	Q <sub>3</sub>	Max.
American	14	56.93	12.69	35.00	49.00	57.50	68.00	77.00
National	14	50.14	11.13	29.00	46.00	50.50	55.00	67.00

The data suggest that the number of home runs is somewhat less in the National League. All five numbers in the five-number summary and the mean are less for the National League teams than for the American League teams. However, there is more variability among the American League teams, which have a standard deviation of 12.69, compared with 11.13 for the National League. Both distributions are reasonably symmetric. The American League has no outliers, but the teams that hit 29 and 31 home runs are outliers in the National League.