5. 0.8849 7. 0.9053 9. 136
11. 69 13. 0.1587
15. 0.4972 (Tech: 0.4950)
17. 119 19. 110
21. a. 75.48% (Tech: 75.56%). Yes, about 25% of women are not qualified because of their heights.
    b. 99.90% (Tech: 99.89%). No, only about 0.1% of men are not qualified because of their heights.
    c. 58.5 in. to 69.1 in.
    d. 63.9 in. to 75.1 in.
23. a. 99.86%
    b. 98.89% (Tech: 98.90%)
    c. 59.5 in. to 73.4 in.
25. a. 0.4129 (Tech: 0.4137)
    b. 25 c. 19
    d. The mean weight is increasing over time, so safety limits must be periodically updated to avoid an unsafe condition.
27. a. 0.0038; either a very rare event occurred or the husband is not the father.
    b. 240 days
29. a. 91.77% (Tech: 91.78%)
    b. 0.01% (Tech: 0.00%)
    c. 2.150. No.
31. P_1 = 17.9 chocolate chips (Tech: 18.0 chocolate chips); P_{99} = 30.1 chocolate chips (Tech: 30.0 chocolate chips). The values can be used to identify cookies with an unusually low number of chocolate chips or an unusually high number of chocolate chips, so those numbers can be used to monitor the production process to ensure that the numbers of chocolate chips stay within reasonable limits.
33. a. The mean is 67.25 (67.3 rounded) beats per minute and the standard deviation is 10.334781 (10.3 rounded) beats per minute. A histogram confirms that the distribution is roughly normal.
    b. 47.0 beats per minute; 87.5 beats per minute
35. a. 75; 10
    b. No, the conversion should also account for variation.
    c. B grade: 45.2 to 52.8
    d. Use a scheme like the one given in part (c), because variation is included in the curving process.
37. 0.0444 (Tech: 0.0430).

Section 6-4

1. a. The sample means will tend to center about the population parameter of 5.67 g.
   b. The sample means will tend to have a distribution that is approximately normal.
   c. The sample proportions will tend to have a distribution that is approximately normal.
3. Sample mean; sample variance; sample proportion
5. No. The sample is not a simple random sample from the population of all college statistics students. It is very possible that the students at Broward College do not accurately reflect the behavior of all college statistics students.
7. a. 4.7
   b.

Sample Variance s^2	Probability
0.0	3/9
0.5	2/9
8.0	2/9
12.5	2/9

   c. 4.7
   d. Yes. The mean of the sampling distribution of the sample variances (4.7) is equal to the value of the population variance (4.7), so the sample variances target the value of the population variance.
9. a. 5
   b.

Sample Median	Probability
4.0	1/9
4.5	2/9
5.0	1/9
6.5	2/9
7.0	2/9
9.0	1/9

   c. 6.0
   d. No. The mean of the sampling distribution of the sample medians is 6.0, and it is not equal to the value of the population median (5), so the sample medians do not target the value of the population median.
11. a.

$\bar{x}$	Probability
46	1/16
47.5	2/16
49	1/16
51	2/16
52	2/16
52.5	2/16
53.5	2/16
56	1/16
57	2/16
58	1/16

    b. The mean of the population is 52.25 and the mean of the sample means is also 52.25.
    c. The sample means target the population mean. Sample means make good estimators of population means because they target the value of the population mean instead of systematically underestimating or overestimating it.
13. a.

Range	Probability
0	4/16
2	2/16
3	2/16
7	2/16
9	2/16
10	2/16
12	2/16