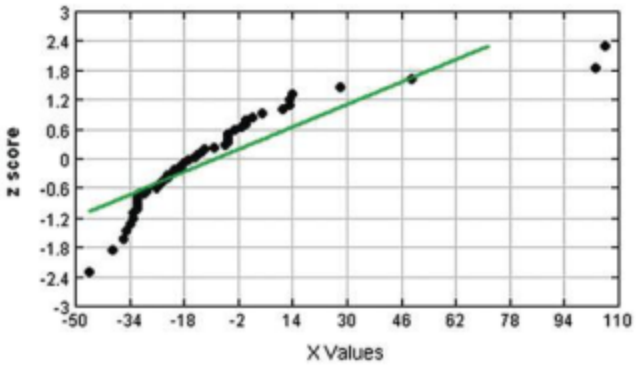
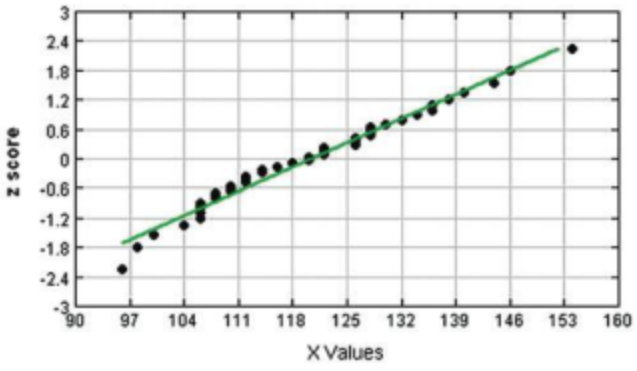
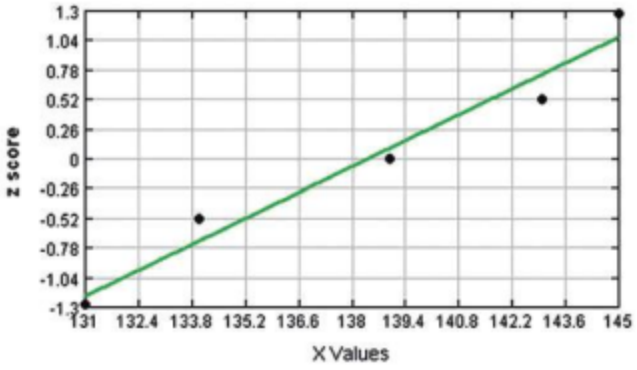
13. Not normal



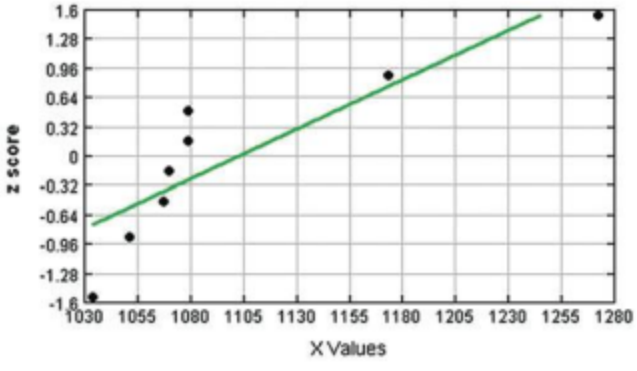
15. Normal



17. Normal. The points have coordinates (131, −1.28), (134, −0.52), (139, 0), (143, 0.52), (145, 1.28).



19. Not normal. The points have coordinates (1034, −1.53), (1051, −0.89), (1067, −0.49) (1070, −0.16), (1079, 0.16), (1079, 0.49), (1173, 0.89), (1272, 1.53).



21. a. Yes b. Yes c. No

23. The original values are not from a normally distributed population. After taking the logarithm of each value, the values appear to be from a normally distributed population. The original values are from a population with a lognormal distribution.

Section 6-7

1. The Minitab display shows that the region representing 235 wins is a rectangle. The result of 0.0068 is an approximation, but the result of 0.0066 is better because it is based on an exact calculation. The approximation differs from the exact result by a very small amount.
3. $p = 0.2$; $q = 0.8$; $\mu = 5$; $\sigma = 2$. The value of $\mu = 5$ shows that for many people who make random guesses for the 25 questions, the mean number of correct answers is 5. For many people who make random guesses, the standard deviation of $\sigma = 2$ is a measure of how much the numbers of correct responses vary.
5. 0.0630 (Tech: 0.0632)
7. Normal approximation should not be used.
9. 0.2743 (Tech: 0.2731)
11. 0.0928 (Tech: 0.0933)
13. a. 0.0219 (Tech using normal approximation: 0.0214; Tech using binomial: 0.0217)
    b. 0.1711 (Tech using normal approximation: 0.1702; Tech using binomial: 0.1703). The result of 172 overturned calls is not unusually low.
    c. The result from part (b) is useful. We want the probability of getting a result that is at least as extreme as the one obtained.
    d. If the 30% rate is correct, there is a good chance (0.1711) of getting 172 or fewer calls overturned, so there is not strong evidence against the 30% rate.
15. a. 0.0318 (Tech using normal approximation: 0.0305; Tech using binomial: 0.0301)
    b. 0.2676 (Tech using normal approximation: 0.2665; Tech using binomial: 0.2650). The result of 428 peas with green pods is not unusually low.
    c. The result from part (b) is useful. We want the probability of getting a result that is at least as extreme as the one obtained.
    d. No. Assuming that Mendel's probability of 3/4 is correct, there is a good chance (0.2676) of getting the results that were obtained. The obtained results do not provide strong evidence against the claim that the probability of a pea having a green pod is 3/4.
17. a. 0.0000 or 0+ (a very small positive probability that is extremely close to 0)
    b. 0.0001 (Tech: 0.0000 or 0+, which is a very small positive probability that is extremely close to 0). If boys and girls are equally likely, 879 girls in 945 births is unusually high.
    c. The result from part (b) is more relevant, because we want the probability of a result that is *at least as extreme* as the one obtained.
    d. Yes. It is very highly unlikely that we would get a result as extreme as 879 girls in 945 births by chance. Given that the 945 couples were treated with the XSORT method, it appears that this method is effective in increasing the likelihood that a baby will be a girl.