ANSWERS TO ODD-NUMBERED EXERCISES

Section 8.8, pp. 8-11 to 8-14

1. No   **3.** Yes   **5.** Yes   **7.** Yes   **11.** ≈ 0.537

13. ≈ 0.688 **15.** ≈ 0.0502 **17.** $\sqrt{21}$ **19.** $\frac{1}{2}\ln 2$

21. $\frac{1}{\pi}, \frac{1}{\pi}\left(\tan^{-1} 2 - \frac{\pi}{4}\right) \approx 0.10242$

25. mean $= \frac{8}{3} \approx 2.67$, median $= \sqrt{8} \approx 2.83$

27. mean $= 2$, median $= \sqrt{2} \approx 1.41$

29. $P\left(X < \frac{1}{2}\right) \approx 0.3935$

31. **(a)** ≈ 0.57, so about 57 in every 100 bulbs will fail.
    (b) ≈ 832 hrs

33. ≈ 60 hydra   **35. (a)** ≈ 0.393 **(b)** ≈ 0.135 **(c)** 0

(d) The probability that any customer waits longer than 3 minutes is
$1 - (0.997521)^{200} \approx 0.381 < 1/2$. So the most likely outcome
is that all 200 would be served within 3 minutes.

37. $10,256   **39.** $\approx 323,\ \approx 262$ **41.** ≈ 0.89435

43. **(a)** $\approx 16\%$ **(b)** ≈ 0.23832 **45.** ≈ 618 females

47. ≈ 61 adults   **49.** ≈ 289 shafts

51. **(a)** ≈ 0.977 **(b)** ≈ 0.159 **(c)** ≈ 0.838

55. **(a)** {LLL, LLD, LDL, DLL, LLU, LUL, ULL, LDD, LDU, LUD,
LUU, DLD, DLU, ULD, ULU, DDL, DUL, UDL, UUL, DDD,
DDU, DUD, UDD, DUU, UDU, UUD, UUU}
    (c) $7/27 \approx 0.26$ **(d)** $20/27 \approx 0.74$