Section 4-6

6. $\frac{1}{10}\cdot\frac{1}{10}\cdot\frac{1}{10}\cdot\frac{1}{10}\cdot\frac{1}{10}\cdot\frac{1}{10}\cdot\frac{1}{10}\cdot\frac{1}{10}\cdot\frac{1}{10}=\frac{1}{1{,}000{,}000{,}000}$

10. $\frac{1}{52}\cdot\frac{1}{51}+\frac{1}{52}\cdot\frac{1}{51}=\frac{1}{1326}$

14. $\frac{10!}{3!3!2!}=50{,}400$

Section 5-2

3. Table 5-7 does describe a probability distribution because the three requirements are satisfied. First, the variable x is a numerical random variable and its values are associated with probabilities. Second, $\Sigma P(x)=0.125+0.375+0.375+0.125=1$ as required. Third, each of the probabilities is between 0 and 1 inclusive, as required.

8. Probability distribution with

$$\mu=(0\cdot 0.659)+(1\cdot 0.287)+(2\cdot 0.05)+(3\cdot 0.004)+(4\cdot 0.001)+(5\cdot 0)=0.4$$

$$\sigma=\sqrt{(0-0.4)^2\cdot 0.659+(1-0.4)^2\cdot 0.287+(2-0.4)^2\cdot 0.05+...+(4-0.4)^2\cdot 0.001+(5-0.4)^2\cdot 0}$$
$$=0.6$$

19. $\mu=(0\cdot 0.377)+(1\cdot 0.399)+(2\cdot 0.176)+(3\cdot 0.041)+(4\cdot 0.005)+(5\cdot 0)+(6\cdot 0)=0.9$

$$\sigma=\sqrt{(0-0.9)^2\cdot 0.377+(1-0.9)^2\cdot 0.399+...+(4-0.9)^2\cdot 0.005+(5-0.9)^2\cdot 0+(6-0.9)^2\cdot 0}$$
$$=0.9$$