

7.4 # 18-21

$$(18) \frac{C(8,3)}{C(14,3)} = \frac{56}{364} = \frac{2}{13} \text{ or } .154$$

$$(19) \text{ a) } \frac{C(4,2)}{C(24,2)} = \frac{6}{276} = \frac{1}{46} \text{ or } .022$$

$$\text{ b) } P(\text{at least 1 def.}) = 1 - P(\text{none def.}) \\ = 1 - \frac{C(20,2)}{C(24,2)} \\ = 1 - \frac{190}{276}$$

$$= 1 - .688 = .312 \text{ or } \frac{43}{138}$$

$$(20) P(\text{rotten} \geq 1) = 1 - P(\text{none are rotten}) \\ = 1 - \frac{C(56,3)}{C(60,3)} \\ = 1 - .81 \\ = .19$$

$$(21) \text{ a) } \frac{C(6,2)}{C(80,2)} = \frac{15}{3160} = \frac{3}{632} \text{ or } .0047$$

$$\text{ b) } P(\text{at least 1 def.}) = 1 - P(\text{none def.}) \\ = 1 - \frac{C(74,2)}{C(80,2)} = 1 - .855 \\ = .145$$

7.4 Exercises

#25, 28, 36

$$(25) \quad P(\text{Student knows at least } 8) = \frac{C(12,10) + C(12,9) \cdot C(8,1) + C(12,8) \cdot C(8,2)}{C(20,10)}$$

8, 9, or 10

$$= \frac{66 + 1760 + 13860}{C(20,10)}$$

$$= \frac{15686}{184756} = .0849$$

or

$$\frac{713}{8398}$$

$$(28) \quad \frac{C(4,1) \cdot C(16,1)}{C(52,2)} = \frac{4 \cdot 16}{1326} = \frac{64}{1326} = \frac{32}{663} \text{ or } .048$$

a)

b)

$$\frac{C(8,1) \cdot C(32,1)}{C(104,2)} = \frac{64}{1339} = .048$$

(36) 10 sequences for a straight in each suit

$$10 \left(\begin{array}{cccc} 4 & 4 & 4 & 4 & 4 \\ \hline & & & & \end{array} \right)$$

$$C(52,5)$$

$$= \frac{10240}{2598960}$$

$$= .00394$$

$$.004$$