

CHAPTER 4: ANSWERS

VOCABULARY AND SYMBOL CHECK

- 1.
- 0
- n
- $\bar{A}$
- none
- mutually exclusive
- at most 3 out of 10
- permutation
- combination
- dependent

SHORT ANSWER

- 720
- 792
- 95,040
- 0.565
- Yes, $1/3$ is between 0 and 1.
 - Yes, .0658 is between 0 and 1.
 - No, probability cannot be negative.
 - No, probability cannot be greater than 1.
 - Yes, $1234/5678$ is between 0 and 1.
- FALSE. Complement of “all boys” is “at least one girl.”
- FALSE. $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$
- TRUE. If an event is impossible then the number of times the event occurs will be 0 and so the numerator of the fraction used to compute probability will be 0 and so the value of the fraction will be 0.
- TRUE. Use the multiplication rule: $10 \times 10 \times 10 = 1000$.
- FALSE. Use the multiplication rule: $5 \times 4 \times 3 \times 2 \times 1 = 120$.
- TRUE. ${}_6P_6 = 720$

PRACTICE PROBLEMS

- 2,494,800
- 24
 - 6
 - 16
 - 0.25
 - $2/3$
 - 1
 - 0
- $\frac{306}{870} = 0.352$
 - $\frac{132}{870} = 0.152$

c. 0.496

d. i. ${}_{30}C_5 = 142,506$

ii. ${}_{12}C_5 = 792$

iii. ${}_{18}C_5 = 8,568$

iv. $142,506 - 8,568 = 133,938$