MATH 1500/MATH1551
Section 5.4 HW Solutions: 3, 11, 13, 15, 17, 18, 37, 39
Section 5.3 HW Solutions: 55-60 ALL

3. $3 \cdot 2 = 6$ routes

11. **a.** $8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 40,320$ ways

b. $5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 \cdot 3 \cdot 2 \cdot 1 = 720$ ways

13. $4 \cdot 3 \cdot 2 \cdot 1 = 24$ words

15. $2 \cdot 3 = 6$ outfits

17. $3 \cdot 12 \cdot 10 \cdot 10 \cdot 10 \cdot 10 = 360,000$ serial numbers

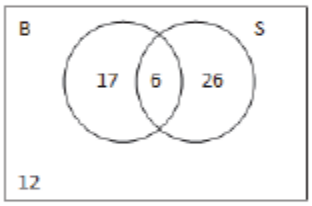
18. $9 \cdot 26 \cdot 26 \cdot 26 \cdot 9 \cdot 9 \cdot 9 = 115,316,136$ license plates

37. $2^6 = 64$ possible sequences

39. $2^5 = 32$ possible ways

Section 5.3 HW Solutions: 55-60 ALL

For Exercises 55–60, let $U = \{\text{students}\}$,
$S = \{\text{seniors}\}$, $B = \{\text{biology majors}\}$.
Then $n(U) = 61$, $n(S \cap B) = 6$, $n(S' \cap B) = 17$, and
$n(S' \cap B') = 12$. Therefore $n(S \cap B') = n(U) - n(B) =$
$n(U) - n(S \cap B) - n(S' \cap B) - n(S' \cap B') =$
$61 - 6 - 17 - 12 = 26$
Draw and complete the Venn diagram as follows.



55. $17 + 6 + 26 = 49$

56. $6 + 26 = 32$

57. $17 + 12 = 29$

58. $17 + 6 = 23$

59. 26

60. $26 + 12 = 38$