ICS 6D—Summer 2018 (Dillencourt)
Homework for Week 5
Covers Sections 10.11–10.12 and Sections 11.1–11.4

1. zyBook exercise 10.11.1
2. zyBook exercise 10.11.2
3. A dozen cookies are selected at a bakery. There are six varieties of cookies: chocolate chip, sugar, ginger, oatmeal raisin, M&M, and snickerdoodles. How many ways are there to select the cookies so that there is at least one chocolate chip or M&M cookie in the selection?
4. A five-card hand is selected from a standard playing deck. How many hands have at least one Queen or Jack?
5. zyBook exercise 10.12.1
6. zyBook exercise 10.12.2
7. zyBook exercise 11.1.1
8. For each permutation of \(\{1, 2, 3, 4, 5, 6\}\), give the next permutation in lexicographic order. If the given permutation is the last one in lexicographic order, say so.
   (a) \(2, 3, 6, 5, 4, 1\)
   (b) \(2, 3, 6, 1, 4, 5\)
   (c) \(1, 2, 3, 4, 5, 6\)
   (d) \(6, 5, 4, 3, 2, 1\)
   (e) \(3, 6, 5, 4, 2, 1\)
9. For each 6-subset of \(\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}\), give the next 6-subset in lexicographic order. If the given 6-subset is the last one in lexicographic order, say so.
   (a) \(\{1, 2, 3, 4, 5, 6\}\)
   (b) \(\{1, 4, 6, 10, 11, 12\}\)
   (c) \(\{8, 9, 10, 11, 12, 13\}\)
   (d) \(\{1, 4, 6, 11, 12, 13\}\)
   (e) \(\{1, 4, 6, 10, 11, 13\}\)
10. zyBook exercise 11.1.4
11. zyBook exercise 11.2.1
12. zyBook exercise 11.2.2
13. zyBook exercise 11.2.3
14. zyBook exercise 11.3.1 part (b)
15. zyBook exercise 11.3.2
16. zyBook exercise 11.3.3
17. zyBook exercise 11.4.1 parts (a), (b), and (c)
18. zyBook exercise 11.4.2
19. zyBook exercise 11.4.3 parts (a), (b), and (c)