

# Errata for First Edition of Investigating Discrete Mathematics

## Student's Version

1. Page 14: In columns 5 and 6 in the table for Question 33, every instance of  $R$  should be replaced with  $Q$ .
2. Page 15: Question 4 should read “If  $P$  is true, is  $\neg S$  true or false. Explain your answer.”
3. Page 96: Question 1(*i*) should say “Grid City with alleys”.
4. Page 96: Question 1(*i*) should be switched with Question 1(*ii*).
5. Page 150: In the first figure in Exercise 2 of Chapter 8, change the label  $(3E, 2S)$  in vertex  $(4E, 4S)$  to the label  $(2E, 3S)$ .
6. Page 174: In the paragraph after Question 16, the second sentence should read “Since last year, the university hired 14, 16, 5, 3, and 6 new. . .”

## Instructor's Version

1. Page 20: In columns 5 and 6 in the table for Question 33, every instance of  $R$  should be replaced with  $Q$ .
2. Page 48: In Question 21, it should read “. . . orders with up to  $s$  scoops,  $f$  flavors. . .”
3. Page 50: In Question 24, it should read “With the 3 flavors, up to 5 scoops, and 3 cone types available. . .”
4. Page 66: In Question 1, it should read “. . . orders exactly 2 scoops, both being vanilla, on a sugar cone?”
5. Page 66: In Question 2, it should read “. . . orders exactly 2 scoops, both being vanilla, on any cone?”
6. Page 67: In Question 4, it should read “. . . orders exactly 2 scoops of any flavors of ice cream. . .”
7. Page 67: In Question 5, it should read “. . . orders at most 2 scoops of any flavors of ice cream. . .”
8. Page 67: In Question 1, it should read “. . . orders exactly 2 scoops, both being vanilla, on a sugar cone?”
9. Page 68: In Question 2, it should read “. . . ordering exactly 2 scoops, both being vanilla, on any cone?”
10. Page 68: In Question 3, it should read “. . . ordering at most 2 scoops of any flavors of ice cream. . .”
11. Page 98: In the italicized text for Question 6, it should read  
“There are three possible orderings of the knights:  $(M, F, F, M, F, F, M, F, F, M, F, F)$ ,  
 $(F, M, F, F, M, F, F, M, F, F, M, F)$ , and  $(F, F, M, F, F, M, F, F, M, F, F, M)$  where  $M$  stands for male and  $F$  stands for female. But at the same time, we are free to choose the order of the males and independently choose the order of the females however we please.  
There are  $4!$  different ways to arrange them. In the same way, we can arrange the females in  $8!$  different ways. Since the choice of position for the females is independent of the choice for the males and the choice of which of the three orderings is independent of the previous choice, there are  $3 \times 4! \times 8! = 2,903,040$  different ways to position the 8 females and 4 males around the table in the prescribed manner.”

12. Page 99: In the italicized text for Question 7, it should read  
 “The arrangement of the males and females must be either  $(M, F, M, F, M, F, M, F, M, F, M, F)$  or  $(F, M, F, M, F, M, F, M, F, M, F, M)$ , but we can arrange the males and females however we want within these arrangements. There are  $6!$  ways to arrange the males and  $6!$  ways to arrange the females. So there are  $2 \times 6! \times 6! = 1,036,800$  different ways to arrange 6 male and 6 female knights around a table in the prescribed manner.”
13. Page 99: In Question 8b, it should read “the committee must contain at most 2 women?”
14. Page 118: The far right summation should say

$$\sum_{i=0}^{n-1} (C_i \times C_{n-i-1})$$

15. Page 123: The definition of graph should say “A **graph** is a set of points  $V$  (called **vertices**; **vertex** is the singular form of vertices) and a set  $E$  of edges, each edge joining exactly two vertices.”
16. Page 123: The definition of walk should say “A **walk** in a graph is a sequence of vertices of the graph in which each pair of consecutive vertices is joined by an edge in the graph.”
17. Page 123: The definition of Euler trail and Euler tour should say “A walk which contains each edge of the graph exactly once is called an **Euler trail**. (In the Alabama CCRS, an Euler trail is called an Euler path.) An Euler trail that starts and ends at the same vertex is called an **Euler tour** or **Euler Circuit**.”
18. Page 124: The following sentence should be added after the definition of path, “(In the Alabama CCRS, a path is the same as a walk.)”
19. Page 124: The quoted text after the definition of path should read “Is it possible to walk across each intersection (vertex) exactly once?”
20. Page 125: The definition of cycle should say “A walk in which the first and last vertices are the same is called a **circuit** and is said to be **closed**. A circuit in which all vertices except the first and last are distinct is called a **cycle**.”
21. Page 125: The definition of Hamilton cycle should say “A cycle that contains each vertex in the graph is called a **Hamilton cycle** or **Hamilton circuit**.”
22. Page 126: Question 1(*i*) should say “Grid City with alleys”.
23. Page 126: Question 1(*i*) should be switched with Question 1(*ii*).
24. Page 139: In the second paragraph of the page, every instance of the word “odd” should be replaced with the word “even”.
25. Page 139: In the third paragraph of the page, every instance of the word “even” should be replaced with the word “odd”.
26. Page 142: Figure 6.13(a) should be replaced with Figure 1 and the best solution is 59 units of time.
27. Page 227: In the first figure in Exercise 2 of Chapter 8, change the label  $(3E, 2S)$  in vertex  $(4E, 4S)$  to the label  $(2E, 3S)$ .
28. Page 257: In the paragraph after Question 16, the second sentence should read “Since last year, the university hired 14, 16, 5, 3, and 6 new. . .”
29. Page 258: Replace Table 9.17(a) with Table 1.

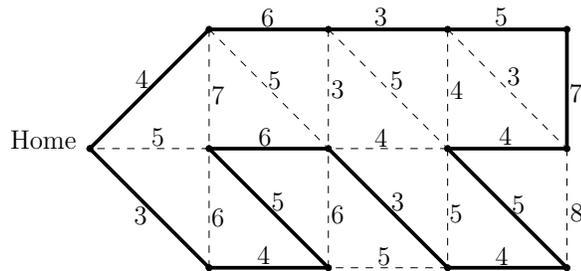


Figure 1: One solution to the traveling salesman problem in Figure 6.13

Department	Step 1	Step 2	Steps 3 and 4
Mathematics	$25 \times 59/178 \approx 8.28$	8	8
Science	$25 \times 61/178 \approx 8.57$	8	9
Arts	$25 \times 21/178 \approx 2.95$	2	3
Business	$25 \times 11/178 \approx 1.54$	1	1
Engineering	$25 \times 26/178 \approx 3.65$	3	4

Table 1: *Distribution of seats in the Hamilton method*