Corrections

- **Chapter 1**

  p 16. Figure 1.19(b). Add the edge xy (add a line joining x and y).

  p 21. Line 6 in the proof of Theorem 1.11: should be "belongs to" (add 'to').

  p 22. Line 3 in the proof of Theorem 1.12: should be "let G be a nontrivial graph" (add 'a').

  p 26. Line 2 in Exercise 1.28: should be "two vertices of S_n" (change 'R_n' to S_n).

  p 28. In Figure 1.38, should be "(c_{12}, c_{10}) is an arc in D" (not the arc (c_{10}, c_{12})).

- **Chapter 2**

  p 37. Line 2 in Exercise 2.12. should be "... and $\operatorname{diam} G \le 4$" (change '2' to '4').

  p 45. Line 2 in the second paragraph. should be "a graph H" (change "G" to "H").

  p 48. Line 9 from bottom (or line -9): should be "Two $u - v$ walks are considered" (change 'consider' to 'considered').

  p 49. Figure 2.18: The last row in A^2 be 1 1 1 0 0 1 and the last row in A^3 be 2 1 1 4 0 1. So A^2 and A^3 are

$$A^2 = \begin{bmatrix} 3 & 1 & 1 & 2 & 1 \\ 1 & 2 & 2 & 1 & 1 \\ 1 & 2 & 2 & 1 & 1 \\ 2 & 1 & 1 & 4 & 0 \\ 1 & 1 & 1 & 0 & 1 \end{bmatrix} \text{ and } A^3 = \begin{bmatrix} 4 & 5 & 5 & 6 & 2 \\ 5 & 2 & 2 & 6 & 1 \\ 5 & 2 & 2 & 6 & 1 \\ 6 & 6 & 6 & 4 & 4 \\ 2 & 1 & 1 & 4 & 0 \end{bmatrix}.$$

  p 54 Exercises 2.48 and 2.49 need to be lined up with other exercises.

  p 66. Line 1 after Figure 3.19: should be "There are other isomorphisms from..." (add 'other').

  p 68. In Figure 3.21: The last row in the group table for $Aut(F)$ should be

$$\beta_6 \ \beta_4 \ \beta_2 \ \beta_3 \ \beta_1 \ \beta_5.$$

- **Chapter 5**

  p 129. Replace the last 6 lines (that is "In particular... a contradiction. ■") in the proof of Theorem 5.20 by the following:

  Since $\ell < k$, there is a vertex $u \in S$ that does not belong to C. Furthermore, since $2 \le \ell < k$, the graph G is ℓ-connected as well. Suppose that the order of C is ℓ. Applying Corollary 5.19 to the vertices $u, v_1, v_2, \ldots, v_\ell$, we see that G contains internally disjoint $u - v_i$ paths P_i $(1 \le i \le \ell)$. Replacing the edge v_1v_2 by P_1 and P_2 produces a cycle containing the vertices $u, v_1, v_2, \ldots, v_\ell$, a contradiction.

  Hence we may assume that C contains a vertex $v_0 \notin S$. Since $2 \le \ell + 1 \le k$, the graph G is $(\ell+1)$-connected. Applying Corollary 5.19 to the vertices $u, v_0, v_1, v_2, \ldots, v_\ell$, we see that G contains internally disjoint $u - v_i$ paths P_i $(0 \le i \le \ell)$. Let v_i' $(0 \le i \le \ell)$ be the first vertex of P_i that belongs to C (possibly $v_i' = v_i$) and let P_i' be the $u - v_i'$ subpath of P_i. Since there are $\ell + 1$ paths P_i' and ℓ vertices of C that belong to S, there are distinct vertices v'_r and v'_t, where $0 \leq r, t \leq \ell$, for which there is a $v'_r - v'_t$ path P' on C having no interior vertices belonging to S. Deleting the interior vertices of P' from C and adding the paths P'_r and P'_t produces a cycle containing the vertices $u, v_1, v_2, \ldots, v_\ell$, a contradiction. ∎

p 129. Exercise 5.36 should be restated as: Let G be a k-connected graph of order $n \geq 2k$ and let U and W be two disjoint sets of k vertices of G. Prove that there exist k disjoint paths connecting U and W.

- **Chapter 7**

p 163: Line 12 should be 'Also, $C : v, t, w, t, u, v$.' (omit one ',' after u).

p 164: Line 6 in the proof of Theorem 7.3 should be $W'' : v = w_j, w_{j+1}, ..., w_k = w_0, w_1, ..., w_i = u$ (change 'w_k, w_0' to $w_k = w_0$).

- **Chapter 8**

p 193. Line 1 in Exercise 8.6(b) should be "Let G be a connected graph of even order." (omit 'G' between the words 'graph' and 'of').

- **Chapter 9**

p 237 and p 238. In example 9.8, the graph has size $m = 17$ (not $m = 18$).

Exercise 9.2: Change to G is k-regular since the Euler Identity uses r as the number of regions.

- **Chapter 10**

p 268. Line 2: should be "that uses k colors ..." (change "use" to "uses").

p 280. Line 4: Change notation '$\max \delta(H)$' to '$\max\{\delta(H)\}$' in Exercise 10.14.

Replace (a) and (b) in Exercise 10.20 by the following.

(a) Use Theorem 8.15 to show that if there is an r-regular bipartite graph H containing G as a subgraph such that at least one of the partite sets of H is U or W, then $\chi_1(G) = \Delta(G)$ (thereby giving an alternative proof of König's Theorem 10.17 for such graphs G).

(b) Show that there need not be an r-regular bipartite graph H containing G as a subgraph such that at least one of the partite sets of H is U or W.

- **Chapter 11**

p 314. In Exercise 11.20, it should be "... contains $K_4 - e$ or a subdivision of $K_4 - e$ as a subgraph (add '$K_4 - e$ or').

p 314. Reordering Exercises 11.24-11.27.

- **Chapter 12**

p 332. Exercises 12.6 is Exercises 1.22

- **Chapter 13**

p 372. Line 1 in Exercise 13.16 should be "For each integer $n \geq 3$ such that $n \equiv 0 \pmod 3$, ..." (add 'such that $n \equiv 0 \pmod 3$').

- **Appendix 1**

  p386 Line 9: Should be "at least one element n in the set S..." (add "n").

- **Appendix 3**

  p395 Line 8: should be "we show first that the result ..." (add "the").

- **Answers**

  p 399. In Exercise 2.11, it would be better to replace "Yes" by "The bound is sharp".

  p 401. Line 4 in the solution for Exercise 2.35 should be "...to show that $x = 5$ and $x = 3$". (omit 'only.', add 'and $x = 3$.')

  p 406. Exercise 5.19 should be '... let $G \cong K_1 + (K_1 \cup K_2)$ (change '$\cup$' to '+').

  p 407. Exercise 5.31 should be "$k = 2 = \lambda(G) - 1$ (change '$\kappa_1(G)$' to '$\lambda(G)$').