

The following Errata were corrected in the 4<sup>th</sup> printing (January, 2006).

- Page 16 Exercises 9a, 9b, 10a, and 10b. Replace the symbol “ $\in$ ” by the word “in”. For example, in Exercise 9a, “ $\exists x \in [3, 5] \dots$ ” becomes “ $\exists x$  in  $[3, 5] \dots$ ”  
 (The symbol  $\in$  is not defined until page 37.)
- Page 25 Exercise 3.6(k) should read “for all positive integers  $n$ .”
- Page 55 Line 4 should read “A member of  $\mathcal{P}$  is called ...”
- Page 58 Exercise 6.15 needs a star. ☆
- Page 71 Theorem 7.26 should be numbered 7.27.
- Page 71 In the Review of Key Terms, “Bijectice” should be “Bijective.”
- Page 128 Exercise 12.14 should refer to Exercise 10.25
- Page 131 Line 2 should read “... every neighborhood of 0 will contain...”
- Page 141 The paragraph under Figure 14.4 should read;  
 “On the other hand, if  $m \notin S$ , then since  $S$  is closed there exists an  $\varepsilon > 0$  such that  $N(m; \varepsilon) \cap S = \emptyset$ . (See Figure 14.5.) But then,  

$$S_{m - \varepsilon} = S_{m + \varepsilon/2}.$$
 Since  $m - \varepsilon \in B$ , we have  $m + \varepsilon/2 \in B$ , which again contradicts  $m = \sup B$ .”
- Page 149 Line 5 should read “ $N(\mathbf{0}; 1) = \{\mathbf{0}\}$ ”
- Page 151 The reference in the first paragraph and in Practice 15.9 should be to Figure 13.2, not Figure 13.1.
- Page 177 The proof of Theorem 18.12, 2<sup>nd</sup> paragraph, 2<sup>nd</sup> sentence should read, “...there exists a natural number  $N$ ...”
- Page 177 Next to last sentence on the page should end with “for all  $m > N$ .”
- Page 188 Exercise 19.5 should refer to Exercise 18.14.
- Page 196 The last line in the first paragraph should refer to Exercise 20.20.
- Page 201 Line 4 should refer to Exercise 16.16.
- Page 228 In Exercise 24.8, the second sentence should begin “If  $D \subseteq X_1$  and ...”
- Page 232 In Example 25.2, the first sentence in the second paragraph should read, “... the slope of the secant line through the points  $(c, f(c))$  and  $(x, f(x))$ .”
- Page 241 Exercise 25.17(a) should be  $f'(c) = k$  not  $f'(x) = k$ .
- Page 246 In Proof of Theorem 26.9, line 9 should refer to Exercise 20.16.
- Page 250 Exercise 26.10 should refer to Exercise 26.8.
- Page 267 In Exercise 28.13(c), line 2, omit the condition “with  $b > 0$ ”.
- Page 313 In Proof of Theorem 34.3, line 8 should refer to Exercise 19.17.
- Page 337 Exercise 36.15 should refer to Exercise 21.16, not Exercise 22.12.
- Page 365 Answer to 5.25 (a) should read “ $\bigcup_{B \in \mathcal{B}} B = [1, 2], \bigcap_{B \in \mathcal{B}} B = \{1\}$ .”
- Page 371 Hint for Exercise 18.15, first line should read “ $|s_{n+2} - s_{n+1}| \leq k^n |s_2 - s_1|$ .”
- Page 373 Exercise 23.11, line 2, should read “ $|f(s_n)| \geq n$  for each  $n$ .” Also, the reference to Theorem 19.6 should be to Theorem 19.7.
- Page 376 Hint to Exercise 30.17 should refer to Exercise 29.16.

The following errata have been noted since the 4<sup>th</sup> printing (January 2006).

- Page 147      The caption to Figure 15.1 should read “ $d(x, y) \leq d(x, z) + d(z, y)$ .”  
Page 153      Exercise 15.2(c) should end with “then  $S$  has an accumulation point in  $S$ .”

Added on February 11, 2006

- Page 367      Hint for Exercise 8.13, 3<sup>rd</sup> line should read “ $\forall k \in \mathbb{N}$  and  $\forall x \in S$ ”.

Added on March 15, 2006

- Page 173      In Exercise 17.11, add the requirement that  $s_n \geq 0$  for all  $n$ .

Added on March 25, 2006

- Page 175      Proof of Theorem 18.3 should refer to Exercise 18.11, not Exercise 18.9.  
Page 177      Proof of Lemma 18.11 should refer to Exercise 18.13, not Exercise 18.11.

Added on April 12, 2006

- Page 336      Remove the star  $\star$  from Exercise 36.3.  
Page 373      Hint to Exercise 23.5 should refer to Theorem 23.6, not Theorem 23.5.

Added on May 12, 2006

- Page 106      Exercise 10.28(a) should be for  $r = 1, 2, 3, \dots, n$ , not  $r = 0, 1, 2, \dots, n$ .  
Page 237      Replace  $[h \circ f(x)]$  with  $[(h \circ f)(x)]$  in 3 places near the bottom of the page.  
Page 375      Hint to Exercise 28.11, first line, should end with “we have  $f(x) = f(x_0) +$ ”

Added on June 13, 2006

- Page 146      Last line should refer to Theorem 11.9(d), not Theorem 11.8(d).

Added on June 28, 2006

- Page 311      Exercise 33.14 should refer to Theorem 19.11, not Theorem 19.10.  
Page 377      In the Hints for Section 34, Exercises 33.5 and 33.9 should be numbered 34.5 and 34.9, respectively.

Added on July 17, 2006

- Page 340      Last line should begin  $\frac{1}{(1-x)^2} = 1 + 2x + 3x^2 + 4x^3 + \dots =$

Added on August 24, 2006

- Page 45      Practice 5.18. Change to  $S = \{x \in \mathbb{R}: x > 0\}$ .

Added on October 24, 2006

- Page 67      In the 6<sup>th</sup> line under the heading “Composition of Functions,” the function  $g \circ f$  should go from  $A$  to  $C$ , not from  $A$  to  $B$ .

Added on February 5, 2007

- Page 75      Exercise 7.12 should read “ $(f + g)(x) = f(x) + g(x)$ ”.

Added on October 2, 2007

Page 34 Exercise 4.12b should read “First suppose that  $x = 0$ . Then  $x \cdot y = 0 \cdot y = 0$ .”

Page 97 Exercise 9.9b should have a star, not a smiley ☺.

Page 368 The third line at the top of the page [Exercise 9.15(b)] should be  $T = S \setminus \{(1,0)\}$ .

Added on November 5, 2007

Page 145 Exercise 14.11(b) should read: “Prove that  $x \in C$  iff  $x$  has a ternary expansion with  $a_n \in \{0, 2\}$  for all  $n \in \mathbb{N}$ .”

Page 154 In Exercise 15.8, the function  $d$  should be defined by 
$$d(f, g) = \{ \sup | f(x) - g(x) | : x \in [0, 1] \}.$$

Added on November 29, 2007

Page 180 The parts in Exercises 18.5 and 18.6 should be labeled (a) and (b).

Added on January 18, 2008

Page 203 Middle line of displayed equation at the bottom of the page should read “  $= \lim f(x_n) + \lim g(x_n)$  ”

Page 205 Last line in the proof of Theorem 21.14 should read “ $f(H \cap D) \subseteq V$ ” not “ $f(H \cap D) = V$ ”.