Comments and Corrigenda

Corrections and additions to these “Comments and Corrigenda” may be sent by email to layton@math.duke.edu.

Comments

1. Page 4, final paragraph:
   the Archimedean property is correct as it stands, since it is implied in its statement that the integer \( n \) must be positive. However, some texts stipulate that the integer \( n \) is a positive integer (e.g., J.R. Kirkwood’s, An Introduction to Analysis, 2d edition).

2. Page 73, definition of \textit{continuous}:
   (i) in this definition, it is implicit in the assertion that \( c \in \text{Dom}(f) \), and in the notation “\( f(c) \)” in Equation (1), that \( f \) is defined at \( c \) and that \( f(c) \) is a finite real number;
   (ii) note that no provision of this definition requires that the terms \( x_n \) of the sequence \( \{x_n\} \) be distinct.

3. Theorem 3.1.3 on page 77 could also be written as follows:
   A function \( f(x) \) is continuous at at point \( c \in \text{Dom}(f) \) if and only if
   for every number \( \epsilon > 0 \), there is a number \( \delta(\epsilon) > 0 \) such that
   \( x \in \text{Dom}(f) \) and \( |x - c| \leq \delta \) imply that \( |f(x) - f(c)| \leq \epsilon \).
   Note that no provision of this theorem prohibits the case of \( x = c \).

4. Page 78, second half:
   this passage is the definition of the limit of a function \( f(x) \) as its argument \( x \) converges to \( c \);
   this concept is of fundamental importance and merits attentive study.

Corrigenda

1. Page 15. A typographical error appears in the fourth line of the proof; in that line, \( T \) should be \( U \).

2. Page 19. The argument of the function \( f \) displayed in Figure 1.3.2 is \( s \), whereas the argument in the accompanying text is \( x \); both should be \( x \) (or both \( s \)).

3. Page 24. In problem 4(b), equality cannot be achieved under the hypotheses given; therefore part (b) should read: “(b) \( \sqrt{ab} < \frac{1}{2}(a+b) \)”
4. Page 76. In the third line of text, which is a set-out equation, the function in the second summand on the right-hand side of that equation should should be $g$ and not $f$.

5. Page 111. In the first line of problem 2, the domain for the function $f$ should be $[0,3]$ and not $[0,1]$.