

Errata in The Cartoon Guide to Calculus

UPDATED APRIL 23, 2013

p. 13. IN THE THIRD PANEL SHOWING BALLOON INFLATION, THE FORMULA FOR THE SPHERE'S VOLUME SHOULD HAVE r CUBED, NOT SQUARED:

$$V = \frac{4}{3} \pi r^3$$

p. 33. IN THE TABLE, THE LAST ENTRY OF THE SECOND ROW, FOR x^2 , SHOULD BE 1, NOT 2.

p. 43. CENTRAL PANEL SHOULD READ: "AN INCREASING FUNCTION HAS A GRAPH THAT GOES UPHILL AS THE VARIABLE MOVES TO THE RIGHT. A DECREASING FUNCTION GOES DOWNHILL."

p. 45. LEFT COLUMN, LINE 13, SHOULD READ "IN PARTICULAR, WHEN $p = -1$,"

p. 52. PROBLEM 13 WAS DRAWN UP INCORRECTLY. SKIP IT!

p. 76. PROBLEM 12 SHOULD ASK FOR AN INTERVAL J SUCH THAT IF x IS IN J , THEN $|f(x)| > |L/2|$ (WITH ABSOLUTE VALUE SIGNS AROUND $L/2$).

p. 97. LAST LINE ON PAGE INSIDE BOX SHOULD READ "APPLYING 3a."

p. 100. PROBLEMS 3, 9, 10, 14a AND 15a DON'T BELONG HERE! THEY DEPEND ON MATERIAL COVERED IN THE FOLLOWING CHAPTER.

p. 103. IN THE SECOND EXAMPLE, WHERE $G(x) = \sin(x^2)$, THE DERIVATIVE SHOULD BE $G'(x) = 2x \cos(x^2)$.

p. 108. IN EXAMPLE 4. LINE 4 SHOULD END WITH $F'(x) = -2x(\frac{1}{2})(1 - x^2)^{-\frac{1}{2}}$ (MINUS, NOT PLUS, INSIDE PARENTHESES). FINAL ANSWER IS CORRECT.

p. 116. PROBLEM 3i SHOULD SAY $u(t)$ RATHER THAN $u(x)$.

p. 124. PROBLEM 1 HAS TWO ISSUES: FIRST, THE FORMULA FOR THE VOLUME OF WATER IS UNNECESSARILY COMPLICATED AND SHOULD BE

$$V = \pi(Rh^2 - \frac{1}{3}h^3)$$

SECOND, THE PROBLEM ASKS FOR $h'(t)$ IN TERMS OF V' AND y . IT SHOULD SAY "IN TERMS OF V' AND h ."

p. 144, PROBLEM 5. POINT ON RIGHT-HAND SIDE OF CIRCLE IS MISLABELED. $(0, 1)$ SHOULD HAVE BEEN $(1, 0)$.

p. 151, UPPER EXAMPLE: RESULT IS CORRECT, BUT RIGHT PANEL SHOULD HAVE

$$\frac{d}{dx}(\sin 2x) = 2 \cos 2x$$

p. 160. PROBLEM 11 SHOULD SAY THE INTERVAL $(1, 3)$ AND ASK YOU TO SHOW THAT THERE IS NO VALUE OF c ON THE INTERVAL SUCH THAT $f(3) - f(1) = f'(c)(3 - 1)$.

p. 168. PROBLEM 3 SHOULD ASK FOR THE AVERAGE OF THE TWO VALUES, I.E., $(E_{\text{HIGH}} + E_{\text{LOW}})/2$, WITH A PLUS SIGN, NOT A MINUS.

p. 186, PROBLEM 2. IN THE FIRST FORMULA FOR S_n , $1/n$ SHOULD BE T/n .

p. 190. THE PROOF SHOULD BEGIN, "IF A HAS A DERIVATIVE..."

p. 198, EXAMPLE 3 HAS ALGEBRA MISTAKES. u SHOULD BE $\frac{1}{2}(v + 3)$, NOT $\frac{1}{2}(v - 3)$, AND THE FACTOR $\frac{1}{4}$ SHOULD DISTRIBUTE OVER THE WHOLE INTEGRAL. CORRECT ANSWER:

$$\frac{(2u-3)^{5/2}}{10} + \frac{(2u-3)^{3/2}}{2} + C$$

p. 215. FIRST PANEL, SECOND PARAGRAPH SAYS "(AGAIN, THINK OF IT AS A THIN STRAND OF FETUCCINE THAT CAN BE STRAIGHTENED OUT.)" THE WORD "AGAIN" IS MEANT TO REFER TO THE THIN RIBBON DESCRIBED ON p. 209, EVEN THOUGH FETUCCINE ISN'T SPECIFICALLY MENTIONED THERE.

p. 223, SECOND PANEL. THE NAME OF THE STREET IS **EASY** STREET, NOT MEAN STREET. EASY, EASY, EASY!

p. 227. THE FINAL, BOLDFACE INTEGRAL OMITTS A FACTOR OF x . THE CORRECT INTEGRAL IS

$$\int_0^D 9.8xW(x) dx$$

p. 228, PROBLEM 1. THE DIAGRAM IS WRONGLY LABELED. IF THE WATER IS D UNITS DEEP, THEN THE HEIGHT LABELED D SHOULD ACTUALLY BE $R - D$. TO FIND THE VOLUME ABOVE THE WATER, THEN, THE LIMITS OF INTEGRATION SHOULD BE 0 AND $R - D$:

$$\int_0^{R-D} \pi(R^2 - y^2) dy$$

THE VOLUME OF WATER SHOULD MATCH NOT THE HIDEOUS FORMULA IN THE BOOK, BUT RATHER THE ONE IN THIS ERRATA SHEET FOR p. 124, PROBLEM 1, WITH D IN PLACE OF h , I.E.

$$\pi(RD^2 - \frac{1}{3}D^3)$$