Calculus Volume 1 Release Notes 2018

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Page Count Difference:

In the latest edition of *Calculus Volume 1,* there are 873 pages compared to the 871 pages in the last edition. This page count variation is due to errata revisions and code releases to conserve space.

Errata:

Location	Detail	Resolution Notes	Error Type
Ch 1, section 1.1 exercises, text preceding problem 28	"y-Intercept" should be "y-intercept"	This typo has been fixed.	Typo
Ch 1: Functions and Graphs, Sec 1: Review of Functions	The following link needs a new target: (http://www.openstaxcollege.org/l/grapherrors)	Revise the URL for http://www.openstaxcollege.org/l/grapherror to: https://www.geogebra.org/m/rmqjtbxS	Broken link
Chapter 1 Section 1.2 page 57 exercise 74	In "x-Intercept" the letter "I" should not be capitalized (as in exercise 73 directly above)	Thank you for the feedback! We've corrected this error.	Typo
Ch 1: Functions and Graphs, Sec 2: Basic Classes of Functions, Figure 1.19	There is a small and confusing error in Figure 1.19 of the Calculus Textbook. On page 40, chapter 1, both quadratic functions are negative. But the orange quadratic function should be positive. This error makes the explanation in the figure confusing.	Revise Figure 1.19 as appropriate.	Typo
Ch 1 Sec 1 pg 34 (textbook), (pg 40 of pdf)	Question 51, Part (a) needs changed to VOLUME, not area. The prior question, #50, was the one that asked about area. "51.The volume of a cube	Our reviewers accepted this change.	Typo

	depends on the length of the sides s. a) Write a function V(s) for the AREA of a square."		
Ch 1: Functions and Graphs, Sec 4: Inverse Functions, Exercise 225	s' either needs to be in feet or 4.5 needs to be the number of inches. If s is in inches and 4.5 is in feet (54 inches), then there is no solution for t because the cosine will never equal -9.	Revise "4.5 ft." to "4.5 in.".	Typo
Ch 1: Functions and Graphs, Sec 5: Exponential and Logarithmic Functions, Exercises 241-245 and 264-269	In the exercises, questions 239-245 and 264-269 ask you to sketch the graph of the function, but the graph is already given.	Remove graphs from exercises 241-245 and 264-269. These should appear in the solutions.	Typo
Ch 2: Limits, Introduction	This refers to version 2.50 of the text. The last sentence in paragraph 1 says "(We explore this problem further in [link].)" but the link simply points to the table of contents. Suggestion: either link to the exploration or delete the sentence.	In webview, ensure that the link given in the Introduction links to Example 2.12 Chapter Opener: Einstein’s Equation.	Broken link
Ch 2: Limits, Sec 1: A Preview of Calculus, Figure 2.2	In Figure 2.2, the middle graph is incorrectly labeled as "g(x) = x/2". This should read "g(x) = x/2 + 1"	In Figure 2.2, revise the label for the middle graph to "g(x) = x/2 + 1".	Typo
Ch 2: Limits, Sec 3: The Limit Laws, Example 2.24	This is an example of using the Squeeze Theorem to find the limit at 0 of the function xcos(x). The bounds used are the functions -x and x, but for the Squeeze Theorem to be applied, one of these functions should be less than or equal to xcos(x) on an open interval containing 0 and the other should be greater than or equal to xcos(x) on an open interval	Revise Example 2.24 to apply the Squeeze Theorem. Update Figure 2.28.	Incorrect answer, calculation, or solution

	containing 0, but this is not the case for these functions. -|x| and |x| would work instead.		
Ch 2: Limits, Sec 3: The Limit Laws	On p. 172 using the Squeeze Thm. in the derivation of the limit of sin(theta) as theta goes to 0, the text says "Because lim 0 as theta goes to 0+ = 0 and lim theta as x goes to 0+ = 0 ..." The second limit should be theta goes to 0 from the right, not x goes to 0 from the right.	Revise "Because lim 0 as θ goes to 0+ = 0 and lim θ as x goes to 0+ = 0 ..." to "Because lim 0 as θ goes to 0+ = 0 and lim θ as θ goes to 0+ = 0 ...".	Typo
Ch 3: Derivatives, Sec 1: Defining the Derivative, Subsec: Tangent Lines	On page 215 of the PDF, in the second paragraph, which begins "We can also calculate the slope..." it says we can replace "x with a+h, where h is a value close to a". It should say "where h is a value close to 0".	In the 2nd paragraph, revise "where h is a value close to a" to "where h is a value close to 0".	Typo
Ch 3: Derivatives, Sec 1: Defining the Derivative	The following link need a new target: (http://www.openstaxcollege.org/l/20_calcapplets)	Revise the URL for http://www.openstaxcollege.org/l/20_calcapplets to: https://www.geogebra.org/m/MeMdCUEm Revise the text as follows: View the development of the derivative (http://www.openstaxcollege.org/l/20_calcapplets) with this applet.	Broken link
Section 3.2, immediately following the first definition	In the sentence "A function f(x) is said to be differentiable at a if f'(a) exists," the prime sign in f'(a) appears too large and low in both the PDF and web views.	Our reviewers accepted this change.	Typo
Ch 3: Derivatives, Sec 3: Differentiation	The title of this example is "Applying the Product Rule	Revise the title to "Applying the Product	General/pedagogical

Rules, Example 3.23	to Constant Functions" which doesn't make sense in my view - a constant function has derivative 0 everywhere. Perhaps a more appropriate title would be "Applying the Product Rule When Given the Derivative at a Point" or something to that effect?	Rule to Functions at a Point".	suggestion or question
Ch 3: Derivatives, Sec 3: Differentiation Rules, Theorem 3.4	In Theorem 3.4 (Sum, Difference, and Constant Multiple Rules) in the statement of the constant multiple rule, the constant switches from a c to a k.	In Theorem 3.4, revise "The derivative of a constant c" to "The derivative of a constant k".	Typo
Ch 3: Derivatives, Sec 3: Differentiation Rules, Student Project	In Calculus Volume 1 3.3 Differentiation rules, the question Formula One Grandstands. The question asks to use the equation x^3+3x+x, however in the graph accompanying the image the equation reads x^3+3x^2+x. Service ticket #17061	Revise the function f(x) = x^3 + 3x + x to "f(x) = x^3 +3x^2 + x" in the text and in the caption to figure 3.21.	Typo
Ch 3:Section 3.5, derivation of the derivative of sine	In the fourth line of the derivation, "cos xh" should just be "cos h".	Our reviewers accepted this change.	Typo
Ch 3: Derivatives, Sec 5: Derivatives of Trigonometric Functions	In chapter 3.5 for the proof that f'(sin(x))= cos(x) For the proof when factoring out sin(x) This is incorrect	In the 1st lin of the proof that f'(sin(x))= cos(x), revise "he" to "the". In the 4th lin of the proof that f'(sin(x))= cos(x), revise "cos x h - 1" to "cos h - 1" in the numerator.	Other factual inaccuracy in content
Ch 3: Derivatives, Sec 7: Derivatives of Inverse Functions, Example 3.64	Example 3.64 shows that g'(x) is 6x when it should be 6x^2, the 6x is carried out through the rest of the problem. In example 3.64, change	In the solution to Example 3.64, revise "g'(x) = 6x" to "g'(x) = 6x^2". Revise the solution to match.	None

	g'(x) from 6x to 6x^2		
Ch 4: Applications of Derivatives, Sec 4: The Mean Value Theorem, Subsec: The Mean Value Theorem and Its Meaning	At the top of page 387, the "meaning" of MVT is not worded correctly. "In Rolle's Theroem, we consider differentiable functions f that are zero at the endpoints. The MVT generalizes Rolle's theorem by considering functions that are not necessarily zero at the endpoints." I believe you mean the slope of the secant line between the endpoints is zero.	Revise the first paragraph of section Mean Value Theorem and Its Meaning as follows: "Rolle's theorem is a special case of the Mean Value Theorem. In Rolle's theorem, we consider differentiable functions f defined on a closed interval [a, b] with f(a) = f(b). The Mean Value Theorem generalizes Rolle's theorem by considering functions that do not necessarily have equal value at the endpoints..."	Other factual inaccuracy in content
Ch 4: Applications of Derivatives, Sec 6: Limits at Infinity and Asymptotes	The informal definition of a limit at negative infinity is incorrectly typeset as $\lim_{x \rightarrow \infty} f(x) = L$. It should be replaced with $\lim_{x \rightarrow -\infty} f(x) = L$.	Revise the 2nd equation in the definition of the limit at negative infinity to "lim x --> -∞".	Typo
Ch 4: Applications of Derivatives, Sec 6: Limits at Infinity and Asymptotes	Before the informal definition of limits at infinity, the sentence "In that case, we write $\lim_{x \rightarrow a} f(x) = L$" should be replaced with "$\lim_{x \rightarrow \infty} f(x) = L$".	Revise "In that case, we write lim x --> a f(x) = L" to "In that case, we write lim x --> ∞ f(x) = L".	Typo
Ch 4: Limits at Infinity and Asymptotes, Sec 6: Limits at Infinity and Asymptotes, Exercise 307	The solution to Chapter 4 Exercise #307 is incorrect. In order for $f(x)$ to have an asymptote at $x = 0$, the highest power of x dividing the denominator $Q(x)$ must be strictly larger than the highest power of x dividing the	Revise the solution to exercise 307 as follows: The degree of Q(x) must be greater than the degree of P(x).	Incorrect calculation or solution

	numerator $P(x)$. The solution in the back incorrectly states that the power of x dividing $Q(x)$ must be exactly one larger than the highest power of x dividing $P(x)$.		
Ch 4: Limits at Infinity and Asymptotes, Sec 6: Limits at Infinity and Asymptotes, Exercise 309	The solution to Chapter 4 Exercise 309 is incomplete. It should read that $\lim_{x \rightarrow 1^-} f(x) = -\infty$ and $\lim_{x \rightarrow 1^-} g(x) = \infty$.	Revise the solution to exercise 309 as follows: lim x --> 1- f(x) = -infinity and lim x --> 1- g(x) = infinity.	Incorrect calculation or solution
Ch 4: Applications of Derivatives, Section: Limits at Infinity and Asymptotes, Example 4.28	On page 431, in the second line of Step 3, it should read, '... Therefore, $\lim_{x \rightarrow -\infty} f(x) = -\infty$. To get ...' The actual typesetting omits the minus sign in front of ∞ in the subscript.	Our reviewers accepted this change.	Typo
Ch 4: Applications of Derivatives, Sec 6: Limits at Infinity and Asymptotes	In Checkpoint 4.24, the numerator initially has final term -1 but it changes to -2 at the end of the problem. Recent previous errata submissions (on pages 414-426) incorrectly identified the format as iBook, but all apply to the PDF/Print format.	In Checkpoint 4.2, ensure that the numerator is "3x^2 + 2x - 1" in both instances.	Typo
Ch 4: Applications of Derivatives, Section: Limits at Infinity and Asymptotes, Example 4.21	In the third line of text on page 415, it should read 'Similarly, $\lim_{x \rightarrow -\infty} f(x) = 5$. The actual text incorrectly has ∞ in place of $-\infty$.	Our reviewers accepted this change.	Typo
Ch 4: Applications of Derivatives, Section: Limits at Infinity and	In the second line of text on page 419, it should read $\lim_{x \rightarrow \infty}	Our reviewers accepted this change.	Typo

Asymptotes, Example 4.22	2 + \frac{1}{x} = 2$ instead of the incorrectly typeset $(\frac{2 + 1}{x})$. The same error occurs in the first line of Example 4.22 as well as the line in Checkpoint 4.21.		
Ch 4: Applications of Derivatives, Section: Limits at Infinity and Asymptotes, Example 4.21	On the third line of page 415 of the text, it should read 'Therefore, $f(x) = 5 - \frac{2}{x^2} has a ...$ instead of the incorrectly typeset $f(x) = \frac{5 - 2}{x^2}$.	Our reviewers accepted this change.	Typo
Ch 4: Applications of Derivatives, Section: Limits at Infinity and Asymptotes, Example 4.25	On page 424, in the centered formula in the second line from the bottom, the decimal points in the expression $\frac{3.0 + 2.0}{4 - 5.0 + 7.0}$ should be replaced with multiplication symbols (either \cdot or using parentheses).	Our reviewers accepted this change.	Typo
Ch 4: Applications of Derivatives, Sec 6: Limits at Infinity and Asymptotes	In the fifth line of text after Checkpoint 4.23, the centered formula should read $$f(x) = a_n x^n \left(1 + \frac{a_{n-1}}{a_n} \frac{1}{x} + \cdots + \frac{a_1}{a_n} \frac{1}{x^{n-1}} + \frac{a_0}{a_n} \frac{1}{x^n} \right).$$ Notice that the formula as currently typeset is missing the $\frac{1}{x^n}$ factor in the last term.	In the fifth line of text after Checkpoint 4.23, revise the centered formula to include "1/x^n" in the last term.	Typo
Ch 4: Applications of Derivatives, Sec 8: L'Hôpital's Rule, Exercises 359-361	It should be specified if the constant a is assumed to be nonzero. If not, a special case must be considered, which is fine, but I don't think it's the intention of	For exercises 359-361, add "a ≠ 0" after the function.	General/pedagogical suggestion or question

	these questions (especially since the instructor's solution manual doesn't indicate a separate case for if a=0).		
Ch 4: Applications of Derivatives, Sec 8: L'Hôpital's Rule, Exercise 370	There is a fraction bar missing from the pi/2 in the denominator.	Ensure a fraction bar is added to the denominator: "π/2 - x".	Typo
Ch 4: Applications of Derivatives, Section: LHpitals Rule, Example 4.38	In the centered formula for part c. on page 462, the last expression in the string of equalities should be just 1 and the expression $\lim_{x \rightarrow \infty} \frac{e^{1/x} - 1}{\ln x}$ should be deleted.	Our reviewers accepted this change.	None
Ch 4:Applications of Derivatives, Sec 8: L'Hôpital's Rule, Example 4.39	In the solution to part a. on page 463, the first centered formula should omit the second expression in the string of equalities. That is, you should delete '\lim_{x \rightarrow \infty} \frac{3 + 5/x}{2x + 1}' entirely. In the second centered formula of part a., the same expression '\lim_{x \rightarrow \infty} \frac{3 + 5/x}{2x + 1}' should be changed to '\lim_{x \rightarrow \infty} \frac{3 + 5/x}{2 + 1/x}'.	In the solution to Example 4.39 Applying L'Hôpital's Rule (infinity/infinity Case), revise as follows: a. Remove the second expression in the centered formula. b. Revise the centered formula to "lim x --> infinity (3x + 5)/(2x + 1) = lim x --> infinity (3 + 5/x)/(2 + 1/x) = 3/2	Incorrect calculation or solution
Ch 4: Applications of Derivatives, Section: LHpitals Rule, Example 4.41	In the second centered formula in the solution of Example 4.41 on page 465, the third expression in the string of equalities should read $\lim_{x \rightarrow 0^+} \frac{1/x}{-1/x^2}$. The actual text has the fraction incorrectly written as $\frac{1/x^2}{-1/x}$.	Our reviewers accepted this change.	None
Ch 4: Applications of	In the first line of part a. of	Our reviewers	Typo

Derivatives, Section: LHpitals Rule, Example 4.45	the solution to Example 4.45 on page 471, replace $\lim_{x \rightarrow \infty} e^x$ with $\lim_{x \rightarrow \infty} e^x = \infty$.	accepted this change.	
Chapter 4, Sec. 4.10, page 500, example 4.54	Error: missing negative sign (-15) for v'(t). Correction: v'(t) = -15	Thank you for the feedback. We've corrected this error.	Typo
Ch 4: Applications of Derivatives, Section: LHpitals Rule, Subsection: Other Indeterminate Forms	On page 465, in the fourth line of text under the heading Indeterminate Form of Type $0 \cdot \infty$, the end of the line should read '...the product $f(x) g(x)$ as $x \rightarrow a$.' (Change ∞ to a.)	Our reviewers accepted this change.	None
Chapter 4 Section 6, Limits at Infinity and Asymptotes	In the third line of text, it should read '...the function $\frac{\cos x}{x} + 1$ shown in Figure 4.42 ...' instead of the incorrectly typeset $\frac{\cos x}{x + 1}$.	Our reviewers accepted this change.	Typo
Ch 5: Integration, Sec 2: The Definite Integral, Exercise 101	The solution given for one of the exercises in section 5.2 is not correct. The question asks for the integral of (1-2x)^3 from 0 to 1 with respect to x. First, the expression is incorrectly expanded to (1 - 2x + 4x^2 - 8x^3) when it should be (1 - 6x + 12x^2 - 8x^3). The final answer given is -2/3, but it should be 0.	Revise the solution to exercise 101 as follows: =the integral of (1 - 6x + 12x^2 - 8x^3)dx = (x - 3x^2 + 4x^3 - 2x^4) =(1 - 3 + 4 - 2)(0 - 0 + 0 - 0) =0	Incorrect calculation or solution
Section 5.3, The proof of the Fundamental Theorem of Calculus part 1	The sentence that says, "In addition, since c is between x and h, c approaches x as h approaches 0." The sentence should read: "In addition, since c is between x and x+h, c approaches x as h	Thank you for the feedback. We've corrected this error.	Typo

	approaches 0."		
Ch 5: Integration, Sec 5: Substitution, Exercise 295	Sec. 5.5, exercise 295 should be t-squared in the numerator for correct u-substitution to work out. It is incorrectly written as just t.	In the numerator, revise "t" to "t^2".	Other factual inaccuracy in content