

Revision Log for AN INTRODUCTION TO BRAILLE MATHEMATICS USING UEB WITH NEMETH A Course for Transcribers

Updated: 8-19-2023

This document contains information about revisions to the PDF and BRF files of *An Introduction to Braille Mathematics Using UEB with Nemeth, A Course for Transcribers*. Individuals who downloaded these files prior to the current upload dates should note this information about what has been changed or should download the most recent copy and discard the old one.

The updated lesson files can be located here:

<https://nfb.org/programs-services/braille-certification/mathematics-braille-transcribing>

Minor wording changes may not be noted, as well as minor changes to page number citations and entries in Table of Contents and the Index.

FRONT MATTER

- 10-23-22 Throughout (mostly): "don't" changed to "do not"
Pages iv, vi: Text changed to say that exercises will be given to you from your grader.
Pages vi, x: Foreword date changed to 2022
Page ix: "Go back" changed to "Return"
Contents: All EXERCISE entries have been removed from the contents list.
- 11-10-22 Contents, end of Lesson 1: "HOW TO PREPARE THE EXERCISES" and "EXERCISE 1" added.
- 11-22-22 Contents. new item: 2.21 Summary of Code Switching with Listed Items
Contents: 9.5 heading changed to "Barbed and Solid Arrowheads".
- 3-21-23 Table of Contents expanded to include subsections.
- 6-10-23 The Study Tips have been moved to the Preliminary Lesson.
Further changes to the table of contents are no longer noted here.

PRELIMINARY LESSON

- 10-27-22 P5, "Symbol Recognition": The last phrase has been deleted.
P8, "Symbol Recognition": The last phrase has been deleted.
P13: The symbol for "American Mathematical Comma" has been removed. A comment is added to Example P-21.
P14: The symbol for "American Decimal Point" has been removed. A comment is added to Example P-22.
- 11-17-22 *Print copy*: The size of the minus sign was standardized, throughout.
- 4-6-23 P13: Title changed; narrative and Example P-21 clarified.
P14: Title changed; narrative clarified.

- 6-10-23 The Study Tips have been edited and moved from the front matter into this Preliminary Lesson.
- 7-3-23 *Throughout*: Consistency applied regarding the terms “sign” and “symbol”.
 P5: Last sentence deleted.
 P8: Last sentence deleted.
 P9.1: Narrative changed.
 Examples P-14 and P-15: Commentary added.
 Examples P-17, P-18, and P-19 simplified.

LESSON 1

- 10-12-22 *Print copy*: Example 1-22, simbraille: Inserted a hyphen at the end of line 1.
- 10-15-22 Section 1.10: An exception was added.
 Section 1.11: New subitem c. and new Example 1-39. The remaining examples renumbered 1-40 through 1-46.
- 10-19-22 Comment to Example 1-11 changed to say "full cells of shadow dots".
- 10-22-22 1.7, narrative: redundant word "the" is deleted.
 1.8, narrative: "In print," is deleted.
 Example 1-33, comment: changed to say "in nonmathematical context".
 Example 1-35, comment: changed to say "in nonmathematical context".
- 10-27-22 Exercise Instructions and EXERCISE 1 have been added to the end of Lesson 1.
- 11-9-22 *Print copy*: Link to the Answers to Practice Material repaired.
Print copy: Exercise 1: The length of the minus symbols is now consistent.
 Page 1-29, a new item (7) was added to HOW TO PREPARE THE EXERCISES regarding lineage.
 There are now ten listed items.
- 11-17-22 *Print copy*: Links to Exercise 1 were added to the brief contents.
Print copy: The size of the minus sign was standardized, throughout.
- 12-15-22 *Print copy*: Shadow dots have been added to blank lines in some of the examples.
 Exercise 1: The instructions have been rewritten. The first paragraph has been removed.
 Some of the items have been rearranged.
- 12-21-22 Example 1-16: Commentary revised.
 Exercise 1, item J: Paragraph heading changed.
- 2-16-23 Example 1-40: Comment added.
- 3-3-23 Instructions to Exercise 1: Clarification regarding placement of the Nemeth Code terminator following the 3-column list.
- 3-30-23 Braille copy: Some of the opening switches have been rearranged.
- 4-16-23 Example 1-9, comment: “decimal point” changed to “decimal numeration”
 Example 1-16, comment: extra “the” deleted
 Example 1-38 deleted. Further examples renumbered.
- 4-21-23 Example 1-45: Comment changed.
 Practice 1G: Instructions changed.
 Format Summary #1, Wording changes made in the last three paragraphs.
- 6-10-23 On the last page, before Exercise 1, the statement about the Study Tips reflects its new location at the end of the Preliminary Lesson.
- 7-4-23 1.3.3: New subsection c. New Examples 1-10 and 1-11. Further examples renumbered.

- Practice 1B: New sentence added.
 1.5 and 1.5.1: Several changes made to these sections.
 1.12: Spacing rules clarified. Commentary added to each example. Subsection c. deleted.
- 8-2-23 1.1, note following the symbols box: Last sentence clarified.
 1.2: Explanation expanded.
 1.3.2: First paragraph reworded.
 Instructions to Exercise 1: More specific directions given regarding the placement of the Nemeth Code terminator.
- 8-4-23 Example 1-24: Linage changed. Comment updated.

LESSON 2

- 10-15-22 Sections 2.4 and 2.5: Narrative changed to clarify the rules regarding the use and nonuse of the punctuation indicator.
Print copy: Example 2-16, simbraille: A decimal point was removed from line 2.
- 11-1-22 2.5: "in the box above" changed to "in the box on the previous page".
 Example 2-11: The comment has been rewritten.
 Example 2-12: The comment has been rewritten. A cross reference to Section 1.11 has been added.
 2.17: A reference to Example 2-32 has been added.
 2.17.1: A new example has been added. Further examples are renumbered.
 2.18.2: Paragraph heading changed to "An Itemized List of Mixed Items." Paragraph headings have been added to subparagraphs a-e.
 Example 2-36: Item 3 has been shortened.
- 11-10-22 2.7: "mathematical symbol" changed to say "mathematical item"
 2.18.1: Last sentence removed. Mental Math example moved to Lesson 4. Further examples renumbered.
- 11-17-22 *Print copy:* The size of the minus sign was standardized, throughout.
 Example 2-42: Heading removed; comment rewritten.
 New section 2.21 summarizes placement of code switches before and after a list.
- 11-28-22 Example 2-8: Division symbol changed to multiplication cross.
 2.5.3: Clarification made regarding a negative number in quotes.
- 12-1-22 Practice 2B: Instructions regarding the placement of switch indicators has been changed.
 The transcription shows the new layout.
 2.21: The summary of the placement of code switches before and after a list has changed.
- 12-15-22 *Print file:* Shadow dots added to blank lines in some of the examples.
 Instructions to Practice 2B changed slightly.
 Section 2.21.1 has been rewritten.
Braille file: The instructions have been rewritten for Exercise 2.
- 3-3-23 2.8.2.b: Punctuation changed after second example.
 Example 2-40: Typo corrected.
 2.20: References to subdivisions deleted.
- 4-11-23 Example 2-42: Blank line inserted before item 1. Comment revised.
 New 2.21.2 regarding bullets. Further subsections renumbered. New Example 2-43.
- 6-10-23 2.10.c changed to 2.10.1. Clarification added.

Example 2-18: Commentary changed.
2.13: "technical material" changed to "a Nemeth symbol". Text added to 2.13.a.
2.14: Heading changed to "Paired Punctuation". Narrative clarified.
2.17: Wording clarification.

7-4-23 Minor wording changes.

LESSON 3

10-15-22 Section 3.1: An exception is added after the first paragraph.
Example 3-1: Spacing changed in print example. The comment is revised.
Print copy: Example 3-11, simbraille: Corrected misspelled word "variables".
Section 3.16: The order of the examples in this section is rearranged. Newly-numbered
Example 3-64 is expanded to illustrate the rule.

10-29-22 3.12.5: Text has been expanded regarding the transcription of chemical element symbols.

11-10-22 3.9 Text added to further define "unmodified" as it applies to an English letter.
New Example 3-52; further examples renumbered.
3.10.1: Parenthetical text moved from the end of this section.
3.12.4: This section has been deleted because the topic of plural, possessive, and ordinal
endings with "single letters" is addressed in Lesson 4. Section 3.12.5 renumbered.
Example 3-65: A second sentence has been added. The commentary reflects the change.

11-17-22 *Print copy:* The size of the minus sign was standardized, throughout.

11-21-22 Examples 3-8 and 3-9 are now combined. A new Example 3-9 has been added.
Sections 3.9 and 3.10 have been improved with clearer layout and discussion.
Commentary is added to Examples 3-49 and 3-50. The order of Examples 3-51 and 3-52 has
been reversed.

12-21-22 3.14: Narrative clarified.

12-28-22 Example 3-28: "or 315" deleted from the end of this sentence.
Practice 3E: Instructions added regarding placement of the Nemeth Code terminator.

3-3-23 Practice 3B: Comment added regarding line 4.
Format Summary #2: Changes made to the first item regarding side-by-side itemized
material.

4-13-23 3.6.2: Title changed; narrative expanded. Subitem a. added. New Example 3-30; further
examples renumbered.

4-30-23 3.10.1.i: Changed to "transcribed in regular type". The first footnote is deleted.

7-5-23 3.11: Cross reference added.
3.11.1: Sample of a capitalized single letter added.

8-19-23 Example 3-16: Comment clarified.
Example 3-17: Comment clarified.
New Section 3.6 and new Example 3-28. Further sections and examples renumbered.
Practice 3B: A fifth sentence has been added.
3.12: Minor wording change.
3.15: Cross reference added to the preceding paragraph.

LESSON 4

- 10-16-22 *Print copy*: Practice 4F, item 5: italics removed from the word "or".
Example 4-44: The numeric indicators are removed; the comment is expanded.
4.20.2: Title changed to "Spacing of Omission Symbols with Abbreviations" and the narrative has been expanded.
Examples 4-50 and 4-51 have been swapped and comments have been added.
Practice 4I, item F: punctuation indicator removed; lineage corrected.
- 10-29-22 4.20.2, The example was misnumbered. Changed to 4-51. Examples are renumbered from here to the end of the lesson.
Example 4-51, comment: wording clarified
Example 4-52, comment: "the" changed to "which"
- 11-10-22 4.26: Sentence added regarding placement of opening switch after a transcriber's note.
4.27: New section added regarding embedded identifiers.
- 11-11-22 The final example was corrected to be number 4-66.
- 11-16-22 *Print copy*: The size of the minus sign was standardized, throughout.
Print copy: Practice 4D: The missing paragraph in the answers has been inserted.
Practice 4F, item 6: The question mark is moved. The explanation in the answer section is clarified.
Practice 4G: The items are now numbered. The answer to item 16 has been changed to YES.
Example 4-64: Item (c) has been removed.
Practice 4I: Item C has been changed.
- 11-22-22 4.8 and Example 4-12: The transcriber's note is now more specific regarding the alphabetic digits used in base twelve.
- 12-22-22 *Print file*: Shadow dots added to blank lines in some of the examples.
4.17: Citation added to subitem v.
- 12-30-22 Example 4-44: *Print copy, simbraille*: Letter "g" deleted from the end of line 4.
4.17.3: Text added regarding set notation. New example 4-42; further examples renumbered.
- 1-19-23 4.17.v: Clarification made regarding words in set notation.
4.17.3: Last sentence deleted.
Example 4-42 is now Example 4-45.
4.17.3.b: The paragraph has been replaced with new text. A new paragraph is inserted following Example 4-44, and Example 4-45 follows.
Example 4-45: Commentary added.
Practice 4G: Another item is added to the end of this list. The answer to #16 is changed.
Example 4-47: The wording is changed in the commentary.
- 3-15-23 4.25: General rule added regarding the blank line before a heading.
- 3-21-23 Example 4-3: meters and m changed to yards and yd.
Practice 4A: m changed to in.
- 4-30-23 4.1.3: New section about code switching and variables. New Example 4-4. Further examples renumbered.
4.20.1: Language changed to "abbreviated unit of measure".
4.20.1.b: Sentence added to clarify the spacing rule.
- 7-5-23 4.10.2: Cross reference added.

4.11: Description added regarding the order of indicators. Sample of Delta added. Last word changed from “below” to “on the next page”.

LESSON 5

- 11-1-22 5.4 (table) and 5.4.1: "back slash" changed to "backslash"
Example 5-20: Nemeth Code terminator moved to precede the word "seconds".
5.4.9.e: Cross reference corrected to say 5.6.14.
Practice 5B, simbraille and braille copy: Column 1 should end in cell 22. Column 2 should begin in cell 25.
5.6.1 title changed to "Arc, Concave Downward"
5.6.2 title changed to "Arc, Concave Upward"
Example 5-31, simbraille: Now begins in cell 3; the word "be" is contracted.
5.10 symbols list: label to the fourth symbol changed to Negated "Bar Under Greater Than"
- 11-11-22 *Braille copy*: Braille page 65, Instructions for Exercise 5: The sentence about embedded identifiers was deleted.
- 11-17-22 5.4.9.e: Cross-reference changed to 5.6.12.
5.4.11.b: Cross-reference changed to 5.6.14.
5.6: The arc symbols have been removed from the comparison signs list. Subsections are renumbered to account for the elimination of 5.6.1 and 5.6.2.
- 12-15-22 *Print file*: Shadow dots added to blank lines in some of the examples.
Practice 5A: Placement of switches changed.
5.4: *Print file*: Second item in symbols table corrected to be dots (16).
Practice 5B, print file: Spacing corrected before the first symbol in column two.
Practice 5C: Items with arcs have been removed. Placement of switches changed.
Example 5-36: Transcription changed to reflect recommended placement of Nemeth Code terminator following an unitemized list.
- 12-19-22 *Braille file*: Instructions to Exercise 5 changed slightly.
- 12-28-22 Practice 5A: Instructions changed.
- 2-1-23 5.11: Typo corrected (begins for beings)
- 3-4-23 5.11: Narrative updated to current practice.
Practice 5F: Comment added.
- 3-30-23 5.2: Sentence added regarding keeping the components of these symbols undivided.
- 4-14-23 Example 5-12: Comment added.
Practice 5D, line 12, braille: “Union” capitalized to match print.
- 5-6-23 Example 5-27: comment added.
5.9.3 and Example 5-31 removed. Further examples renumbered.
5.11, last paragraph deleted
New 5.11.1 “Keep Together”; former 5.11.1 renumbered to 5.11.2.
- 7-5-23 Example 5-16: Single-letter abbreviation added; comment adjusted.
Example 5-18: Single-letter abbreviation added; comment adjusted.
Example 5-19: Comment added.

LESSON 6

- 11-12-22 Example 6-21: Comment changed to "the plus sign".
Braille copy: Practice 6D, item (3) changed to two sentences.
6.7.1 and Example 6-26 comments: "parentheses" changed to "left and right parenthesis" and further text added.
6.16: "symbols braille" changed to "symbols in braille".
Practice 6L: "the" changed to "each"
Practice 6K: A period was added to the transcriber's note.
Print copy, Answers to Practice Material: Practice 6C, Number 6.02 corrected; Practice 6D, Punctuation indicators inserted before each period.
- 12-8-22 *Print copy*: Shadow dots added to blank lines in the examples.
Practice 6B: Instructions changed. Placement of the blank lines in the transcription changed.
- 12-15-22 Practice 6J: Placement of the switch indicators has changed, as described in the instructions.
- 2-16-23 Practice 6C, item 4: *Print*: Quotation marks removed. *Simulated braille*: The number 6.02 corrected.
Practice 6K, item 3: *Braille*: A multipurpose indicator was inserted before the superscript 18.
- 3-31-23 Example 6-31: Commentary added.
Example 6-35: Commentary changed.
6.12.4: title changed, subsections rearranged, text and commentary clarified regarding ellipsis or long dash within a superscript or subscript.
New Example 6-39. Further examples renumbered.
6.12.5: Last sentence deleted. In the first sample, a space has been inserted before the baseline indicator.
Practice 6I, item 7: A space has been inserted before the subscript indicator that is associated with the ellipsis.
Practice 6J: Bold type changed to be centered headings.
- 5-15-23 6.13: Subheadings relabeled as 6.13.1 and 6.13.2.
Practice 6J, braille line 4, misformed aleph corrected.
- 7-5-23 Example 6-20: Omission added; comment adjusted.
6.12.4.a: Wording changed to clarify this rule.
6.12.4.b: Last sentence deleted.
Example 6-39: Spacing error corrected; comment adjusted.
6.12.5: Wording clarified. A second sample has been added.
- 7-20-23 Practice 6D, item (7): Brackets added to the link.

LESSON 7

- 10-30-22 *Print copy*: Practice 7A, simbraille, lines 12-13: $n > M$ was moved to line 13 to keep both switches on the same line as the math expression.
Print copy: Practice 7D, simbraille, lines 11-12: The opening switch and (a was moved to line 12 to keep the math expression and its code switch indicators on the same line.
- 11-4-22 7.1.1: A bulleted item was added regarding displayed material following a transcriber's note.
- 11-22-22 *Print copy*: The size of the minus sign was standardized, throughout.
Print copy: 7.7.1: The script 4 font has been corrected.
Practice 7H, item 1: boldface has been applied to the word "red" in the last sentence.

- 7.11.3: The note to students has been edited.
- Example 7-37: Line numbers are added. The expression is now displayed and the period and ellipsis have been removed. The word "red" is colored red. The lines are numbered. Commentary has been added.
- Example 7-39: Line numbers are added. The comment is reworded.
- 12-16-22 *Print copy*: Typeform issues for bold and italic letters have been corrected in several places throughout this lesson.
- Examples 7-1 and 7-2: Commentary clarified with cross-references to 7.1.1.
- 7.1.3: This section has been reorganized. Corrections are made to the examples and commentary includes cross-references to 7.1.1.
- Practice 7A, *print copy simbraille*: "ence" is now contracted in "Sequences".
- Practice 7E, *braille and simbraille*: The last two symbols on the fifth line are corrected to be gheh and Zheh. Also, the code switch indicators have been changed to the recommendation of being alone on the line before and after the list.
- Practice 7F, *print copy*, line 5: A font discrepancy has been corrected. *Braille and simbraille*: The code switch indicators have been changed to the recommendation of being alone on the line before and after the list.
- Practice 7H: The wording in the second paragraph is corrected to match the print.
- Example 7-32, line 2 of the braille: Space inserted between the comma and the word "the".
- Example 7-33, line 3 of the braille: Space removed between "sum of A and -B" and the colon.
- Practice 7J: The code switch indicators have been changed to the recommendation of being alone on the line before and after the list.
- Practice 7L, *simbraille*: On line 3, a comma is added after the word "pairs". *Braille and simbraille*: The first expression and the word "and" fits on line 7.
- Example 7-35: Punctuation and text changed slightly. Cross-reference corrected.
- 2-1-23 7.2.2: Text change to state that a Transcriber's Notes page is required. The transcriber's note has been changed to match the one given in Practice 7D.
- 2-16-23 7.1.1: Rewritten to clarify placement of switch indicators with displayed math expressions.
- Practice 7B, item 2: code switches changed in the displayed material; commentary added.
- Example 7-7: Lines 2-4 changed to illustrate Nemeth continuing after the displayed expression. Commentary added.
- 7.2.1: Rewritten to follow established guidelines for code switching before itemized math.
- Example 7-11: Only one transcription is retained.
- Practice 7D: Commentary to line 14 rewritten.
- Practice 7I, *print*: In item (1), the plus signs were changed to regular type. Comment added.
- Example 7-37: Lines 5-6 edited according to code switching guidelines after a transcriber's note. Commentary adjusted.
- 4-2-23 7.1: Note added.
- 7.1.1.a and b: Text clarified.
- Example 7-2: Slight changes.
- 7.5, symbols list: "San Serif" changed to "Sans Serif". Note moved up from subsection a.
- 7.5.a: Order of indicators clarified.
- Practice 7E: Instructions and sample changed to show the opening switch on a line by itself.

- Practice 7F, last line, braille: Symbols corrected to capital Delta and sans serif letter d.
 Practice 7J: Instructions corrected to match recommended format given in Lesson 2.
- 5-10-23 7.1.1: Slight wording change for clarification. Subsection c. added.
 7.6.2.a, third sample, Print copy: letter p is bold.
 Example 7-27, Print copy: word changed to match the braille.
 Example 7-36, Print copy: period added to the end of the sentence.
- 7-3-23 7.2.1: Changes made to code switching guidelines regarding labeled displayed material.
 Example 7-11: Placement of the opening Nemeth Code indicator location changed.
 Practice 7B, commentary for lines 13-16: Cross reference updated.
 Practice 7D: Instructions changed. Label (2) changed to be in UEB. Commentary adjusted.
 Practice 7E, *Instructions*: Changed "44" to "40"
 Example 7-38, *braille and simbraille*: The words "null" and "vector" changed to lowercase.
 Example 7-39, *simbraille only*: Hyphen inserted in "three-dimensional".
Braille file: Instructions to Exercise 7 updated.

LESSON 8

- 12-6-22 *Print copy*: The size of the minus sign was standardized, throughout.
 8.5: The narrative has been changed to match that of the new code book.
 8.5.1.a "Linear Print Representation of a Mixed Number" has been removed from the code
 and so has been deleted from this lesson. The text from subsection b. has been moved
 to the main part of 8.5.1.
 8.5.3: The narrative and the two examples have been changed to match that of the new
 code book.
- 12-29-22 Practice 8D: Code switch indicators moved.
- 1-19-23 Example 8-33, *Print copy*: Identifier "1." added.
 Example 8-36, line 7: Nemeth Code terminator deleted.
 Example 8-41, *Print copy*: Multiplication dots inserted in denominators.
 Example 8-42, *Print copy*: Multiplication dots inserted in denominators.
- 1-31-23 *Print copy*: Date in footer corrected.
- 7-3-23 Practice 8E, *braille and simbraille*, line 10: A space is inserted before the baseline
 indicator/ellipsis (twice)
 8.21 (1): The word "embedded" has been deleted.
 8.21.2: Last sentence clarified.
 Example 8-15: Commentary expanded.
 Example 8-20: Trademark symbol inserted.
 New Example 8-32. Further examples renumbered.

LESSON 9

- 12-18-22 *Print copy*: The size of the minus sign was standardized, throughout.
 9.5: Heading changed to "Barbed and Solid Arrowheads". Solid arrowheads added to the
 table. Names of arrowheads updated. Other small changes made to this section.
 Practice 9B: Placement of switch indicators and blank lines changed to comply with new
 guidelines.
 Example 9-60: Opening switch moved to cell 3; commentary adjusted.

- 1-20-23 *Braille copy*: Instructions to Exercise 9 have been changed.
- 2-7-23 9.18 and Example 9-20: Clarification regarding margins for side-by-side layout.
Braille copy: The instructions for EXERCISE 9 regarding side-by-side layout were updated.
- 2-17-23 Examples 9-34 and 9-35: Commentary added.
Example 9-54: Braille/simbraille changed to start out in UEB.
9.29: Sentence regarding headings added to subitem i; cross reference removed from subitem v.
9.30: Cross reference removed from subitem v.
9.31: Clarification added regarding cell-5 and cell-7 headings. Two new examples added.
- 2-28-23 9.8, Table of symbols: Simbraille for the third arrow left column corrected.
9.17.2: "currency" changed to to "monetary" throughout.
9.17.2.b: Narrative adjusted to obey a rule change.
Examples 9-18 and 9-19: Changed to obey the rule change.
Example 9-25: Correction made to the first problem; commentary added.
Section 9.25, second paragraph: Clarification added regarding items below the separation line.
Examples 9-57, 9-59, 9-60, and 9-63: Commentary added.
Section 9.31 divided into two sections.
- 3-4-23 *Braille copy*: Last item in the instructions for Exercise 9 changed.
- 3-7-23 Section 9.22 and 9.22.1 rewritten.
- 3-9-23 *Print copy*, Example 9-9: separation line corrected.
- 4-3-23 Section 9.22 further clarified.
Example 9-37, print: Final mixed number corrected.
- 5-23-23 9.8: Last sentence changed regarding number lines.
9.13: "Cartesian graphs" added to the list at the end of the paragraph.
Much has changed after Section 9.18. Significant changes have been made regarding margins for displayed side-by-side spatial problems. Examples are renumbered after Example 9-21.
- 5-24-23 *Braille file*: Instructions to Exercise 7 changed.
- 5-27-23 9.19: Deleted "an ellipsis" from the first sentence.
Example 9-24: The omission in the second problem is now printed as a question mark. The comment is changed.
- 7-5-23 9.29.v and 9.30.v: changed "such as a heading" to "such as a heading or Nemeth instructions."
- 8-2-23 9.18: Minor wording changes.
9.19.2: Rule changed regarding alignment of the question mark.
Example 9-24: Order changed; commentary adjusted.
9.21: Minor wording changes.

LESSON 10

- 12-29-22 *Print copy*: The size of the minus sign was standardized, throughout.
- 1-20-23 *Braille copy*: Additional note added to the instructions to Exercise 10.
- 2-19-23 Example 10-18: Commentary edited.
Example 10-19: Line numbers added. Commentary edited.

- Example 10-25: Line numbers and commentary added.
 Example 10-26: Line numbers and commentary added.
 Practice 10D: The side-by-side arrangements moved to the left two cells. Comment added.
- 3-17-23 10.6: Clarification added.
 Practice 10B: Instructions The first problem has been changed.
 Example 10-22, simbraille: full cell corrected to be a minus symbol.
 Practice 10D: Instructions changed. In the simbraille, "six" changed to "seven" on line 1; colon changed to period on line 7; fourth problem moved up to lines 9-11; last problem moved up to lines 13-16. Commentary adjusted.
- 3-23-23 Example 10-22: Division symbol corrected.
 Example 10-24, print copy: Extra braille number 3 deleted in the divisor.
 Example 10-27, print copy: Missing braille separation line inserted.
 Example 10-35: Missing quotients inserted.
- 5-7-23 *Braille file*: New sentence added to the instructions for Exercise 10.
 5-26-23 Practice 10D: Instructions changed. *Braille*: The displayed spatial problems begin in cell 3.
 6-3-23 10.15.b, sample, first line, print file: moved the 2 to the right one cell.
 Example 10-33: Several corrections made.
- 6-11-23 Practice 10B, item 4, print copy: – 60pq changed to + 60pq in the answer.
 10.16: Note added after Example 10-34.
Braille file: Instructions to Exercise 10 changed.
- 7-3-23 Example 10-9: Comment clarified regarding the multiplication cross.
 10.16: Subsection a. added.
- 8-2-23 10.11: Print image corrected (dividend is 47)
 10.14: Wording updated to match code change.
 Example 10-29: Braille and simbraille division symbol corrected.
 Example 10-30: Braille and simbraille division symbol corrected; comment added.
- 8-9-23 10.13.1 *Print copy* last sample, simbraille: Alignment of the quotient corrected.

LESSON 11

- 12-18-22 *Print copy*: The size of the minus sign was standardized, throughout.
 11.6: A sentence has been added following the filled-in square.
 Practice 11A: Transcriber's note changed to match the model given in 11.4.1. Commentary deleted.
 Example 11-22: Text added for clarification.
 Example 11-26, commentary: Changed "back slash" to "backslash"
 11.36.2.a: Renumbered to be 11.36.3, and labeled "Significant Typeform Applied to a Fraction or a Mathematical Symbol"
- 2-19-23 Example 11-1: Comment revised.
 Example 11-3: Comment added.
 Example 11-26, braille and simbraille: comma added to match print.
- 3-21-23 11.13: numeric indicator inserted before numeral 30 in sample of interior angle.
 11.24.1.d: terminator symbol added to the end of the right arrow keystroke.
 Example 11-20, print: second "Z" made bold.
- 4-11-23 Example 11-9, *print copy*: deleted the first "and".

- Example 11-10, *print copy*: "F1" image corrected.
 Example 11-25: Rewritten.
- 5-2-23 Example 11-1: Shading has been erased from the first octagon shape; in the comment, emphasis has been applied to the title *Guidelines and Standards for Tactile Graphics*.
 11.6: Clarification added regarding filled-in and shaded shapes. New Example 11-5. Further examples renumbered.
 11.3.1, 11.4.1, 11.10: Appendix B of the Nemeth Code changed to Appendix D of *The Nemeth Braille Code for Mathematics and Science Notation*.
 11.26: Clarification regarding transcriber's note.
 Example 11-22: Comment added.
 11.36.1.a: Rewritten; second example changed to include the word "not". Comments added.
 Postscript added to the end of the lesson regarding probability notation.
Braille file: Instructions to Exercise 11 changed slightly.
- 7-1-23 11.27: Commentary expanded.
 Practice 11E: Second sentence added to the instructions. Item B changed. First denominator in item C (print image) corrected.
 11.33: Cross reference added in second paragraph.
 Practice 11F: New item 8 added.
- 7-8-23 11.33, second paragraph: Explanation regarding the subscript indicator is clarified. Another sample added for comparison.
- 8-10-23 11.11: Last paragraph clarified.
 11.14: Note added regarding calculator/keyboard notation.
 Two sections were rearranged, affecting many changes in this file.
 Examples and cross-references in affected sections renumbered.
 Practices 11F, 11G, and 11H are new.
 11.34 (old 11.25): Last sentence deleted.
 Postscript moved to follow 11.36.1.a.
- 8-12-23 11.4: Note added regarding uppercase Greek delta.
 11.5: Note added regarding nabla symbol.
 Example 11-13 deleted; Further examples renumbered.
 11.25: Triangle shapes changed to other shapes.
 Practice 11F, #1: Omission shapes changed to circles.

LESSON 12

- 12-19-22 *Print copy*: The size of the minus sign was standardized, throughout.
 12.16.2: Paragraph added following the boxed symbol.
 Example 12-21: Comment deleted.
- 12-29-22 Example 12-22: Code switching changed on lines 13-16.
- 2-1-23 A second paragraph was added to the Lesson Preview.
 Some modifiers were enlarged for clarification.
 Paragraph before Example 12-20: A note was added about the lack of code switch indicators.
- 2-15-23 12.12, table: Extra line deleted under "Hollow Dot Over Equals Sign"
 Practice 12C: Code switching repaired on line 6. An alternate transcription of item 3 is given.

- 2-19-23 Practice 12D, braille and simbraille: Opening Nemeth Code indicator moved to the end of line 4 and deleted from the beginning of line 5.
Practice 12G: Comment added.
- 4-4-23 12.3.3 and Example 12-3 clarified and expanded.
- 4-16-23 Example 12-10 (print): Items in Arabic column changed to be aligned by place value; items in Roman column changed to be centered.
Example 12-22, Statement 2 (braille): semicolon changed to a comma
Practice 12J, Step 1 (print): minus symbol changed to equals sign.
Braille file: Instructions for Exercise 12 changed.
- 4-25-23 12.3.3: Heading changed to “Arrows Used in Vector Notation”.
12.3.3.a and Example 12-4 deleted. Further examples renumbered.
12.6.2, note to first sample: "4" changed to "6"
Example 12-14 (formerly 12-15): Braille format changed to a nested linked expression.
12.7: Correction made to the print image of the Sigma sample.
Postscript added regarding various types of vector notation.
- 7-5-23 Example 12-22: Paragraph heading deleted. Comment added regarding line 5.
- 8-2-23 Example 12-19: Examples reordered; commented moved to follow number (8).
12.16.2: Cross reference added.
Example 12-21: Minor changes.
Braille file: The instructions to Exercise 12 have been changed regarding the : symbol in the Leibniz notation (it is a ratio sign, not a colon).

LESSON 13

- 12-19-22 *Print copy*: The size of the minus sign was standardized, throughout.
13.1.5: Only the slanted line through the empty set symbol is now in the code.
Practice 13A: Placement of code switch indicators has been changed.
13.10.1: Mention of icons deleted. Second paragraph moved and changed.
- 1-8-23 13.9.4: Subsection a. added. New example 13-19. Further examples renumbered.
- 2-19-23 *Print copy*, Practice 13B, line 5, simbraille: Nemeth Code terminator deleted.
- 4-30-23 13.1.3, second chevron, print copy: n corrected to be in the superscript position.
13.1.10.a: changed “Appendix B of the Nemeth Code” to “Appendix D of *The Nemeth Braille Code for Mathematics and Science Notation*”.
Practice 13A, print copy: typeform correction in the 4th item, subscript level correction in the 13th item.
- 5-9-23 *Print copy* Example 13-6: two symbols corrected.
Print copy Example 13-7: subscript level corrected.
- 6-27-23 13.10: Title changed to “Usage and Code Switching”. Text clarified.
13.10.3: “In braille” changed to “In Nemeth context”. Sentence added regarding UEB rules.
Practice 13E moved to precede the section on Reference Indicators.
New Practice 13F follows the section on Reference Indicators.
- 7-6-23 13.1.8.a: The word “Because” changed to “When”.
- 8-2-23 13.1.3: The text regarding the del as a sign of omission has been deleted.

LESSON 14

- 12-23-22 New Example 14-13. Further examples renumbered.
Renumbered Example 14-16, lines 2 and 3, braille: Space inserted following each function, before each x. Parentheses removed.
- 1-9-23 14.2.2: Narrative clarified. Comment to the first sample changed.
Example 14-13: Variable changed to beta.
14.3.4: Sample changed to include parentheses. Comment added.
- 4-4-23 Practice 14E: Commentary added to the transcription.
Example 14-20: Comment added.
Practice 14H: Commentary added to the transcription.
- 4-25-23 14.2.1 and 14.2.2: Language clarified.
14.2.2: A sample has been added. Comment moved to Example 14-3.
Examples 14-5, 14-7, 14-8: Comment reworded.
Example 14-9: First word removed.
Practice 14A: The space before cos corrected to be a baseline indicator.
14.3-14.8: The word “abbreviated” has been deleted throughout most of these sections.
Practice 14B, simbraille: Item (1) deleted; remaining items renumbered (1)-(7)
14.3.b: A sample has been added.
14.4: A sample has been added.
14.7: Comment clarified.
Example 14-21: Several alignment corrections have been made.
Example 14-22: Alignment corrections have been made in the print image.
Example 14-23: Unnecessary spaces deleted from one of the columns in the braille transcription.
- 6-27-23 14.7.2: First sentence corrected to say “an abbreviated function name”. The second sentence follows the first sample.
14.10: Symbol name changed. Minor wording changes.
Example 14-20: Simbraille corrected to match print.
14.12: Text clarified.
Practice 14G: Alignment of partial quotients changed.
14.13: The word “synthetic” is added to each label.
14.13.1 and 14.13.2: Language clarified.
Example 14-25: Comment changed.
14.13.3 and 14.13.4: The word “synthetic” is added to the title.
Practice 14H: Comment added regarding line 7.
- 7-6-23 Minor formatting adjustments.

LESSON 15

- 12-29-22 *Print copy*: The size of the minus sign was standardized, throughout.
Practice 15D, *braille*: Nemeth Code terminator inserted at the end.
Practice 15E, *braille*: Opening Nemeth Code indicator inserted at the end of line 4.
- 4-4-23 15.2.1: Heading added.
- 5-10-23 Practice 15B: Sommer’s routine changed to item D. Braille errors in the math portion corrected.

- Practice 15E, braille lines 7 and 8: Two closing fraction indicators inserted.
 Example 15-36, braille line 2: Dot 5 inserted before the modified Sigma notation
- 6-25-23 15.1.4: Heading changed to “Code Switch Indicators”.
 15.2: Text added to end of first paragraph.
- 7-6-23 Practice 15C, *braille and simbraille*: Inserted a space before the baseline indicator/ellipsis.
 Example 15-3, *braille and simbraille*, line 1: Colon deleted after the word "polynomial".
 Example 15-22, *braille and simbraille*, line 6: Dots (456) inserted before opening and closing fraction indicators; line 7 deleted.
 Example 15-22: Commentary adjusted.
 Example 15-32, *print copy*: Image changed to show the integral symbol at a slant.
 Example 15-32: Cross-reference added (13.1.8.a).
- 8-2-23 15.1.3: Narrative expanded for clarification.
 15.4: Shortened the first sentence. Order of bullets changed. Sentence added to second bullet regarding a fraction line.
 15.4.2: “if the anchor or” added to next-to-last sentence.
 Example 15-6: Comment expanded.
 15.5.1: Examples reordered.
 15.5.2: New section. Further sections renumbered.
 New Example 15-22; further examples renumbered.
 Practice 15C: Item 2 added.

LESSON 16

- 12-29-22 *Print copy*: The size of the minus sign was standardized, throughout.
 Practice 16G: Instructions added.
 Example 16-21: The last expression is moved to start on line 13 with its opening Nemeth Code indicator.
- 1-27-23 16.14: A sentence was added about placement of the key.
- 4-4-23 16.6.1: Added the word “given”.
 Example 16-17: Comments expanded.
- 5-26-23 Practice 16C, *print copy*: minus sign changed to equals sign.
 16.6.2: Some of the comments have been clarified.
 Practice 16D: “m” is no longer cancelled; $\times 1$ added to last numerator and “m” moved to the numerator. “100” is now canceled in the second link.
 Example 16-21: Comment to lines 1-2 corrected to (3-1).
Braille copy: The instructions to Exercise 16 have been clarified.
- 7-6-23 16.7: Wording change.
- 8-16-23 *Braille copy*: More details added to the instructions to Exercise 16.

LESSON 17

- 12-24-22 17.10: This entire section has been updated to follow the new rules.
 17.17: Last sentence deleted.
 17.17.1: Text updated.
 17.17.3: Only the preferred method is retained.
 Examples 17-34 and 17-35: Commentary expanded.

- 12-28-22 Example 17-9: Comment added regarding placement of the Nemeth Code terminator.
Example 17-31: Comment added regarding margins.
- 4-4-23 Example 17-22 Clarified; commentary edited.
Example 17-34: Item number changed to “8”.
- 5-26-23 Miscellaneous typos corrected throughout.
Practice 17E: Margin changed to cell 1.
Practice 17F, braille: line 6: fraction corrected to 3/4; item 5: word “the” deleted to match the print copy.
Practice 17G, braille: last line of item 1 and item 2: baseline indicator inserted before the right enlarged grouping symbol.
- 7-6-23 Minor wordsmithing.

LESSON 18

- 10-17-22 Examples 18-8b, 18-13, 18-14: Spacing corrected to assure at least two blank cells between columns.
18.6.3.a Space-Saving Alternative: This section has been deleted.
- 10-21-22 *Braille copy*: Instructions for item (2) in Exercise 18 were changed.
- 10-22-22 Example 18-17: Ellipsis deleted.
- 12-9-22 *Braille copy*: The instructions for Exercise 18 were changed slightly.
- 12-28-22 *Print copy*: The size of the minus sign was standardized, throughout.
18.1: A second paragraph has been added.
18.4.3: Heading changed. Text added to the paragraph. New subitems b. c. and d. New Example 18-7. Further examples renumbered.
Example 18-9b: Commentary revised.
Practice 18A: Instructions revised.
Examples 18-14 and 18-15: Numbers changed to be right-adjusted.
Example 18-16, alternate transcription: A blank line was inserted before the closing switch.
Braille copy: Instructions to Exercise 18 changed.
- 4-4-23 Example 18-7, braille: Numerals aligned as printed.
18.10: Narrative expanded.
- 5-19-23 Example. 18-21 and 18-23: Comment added regarding placement of displayed diagrams.
Practice 18E moved to follow Example 18-23.
Section 18.10 expanded to show examples of number lines, including a new Practice 18F.
Further examples and practices relabeled.
Braille file: Instructions for Exercise 18 changed.
- 6-24-23 Example 18-18: A full transcription of this table is given, including the transcriber’s note required by Braille Formats. Commentary revised.
Practice 18D: Narrative deleted. Commentary updated.
Practice 18D, braille and simbraille: Numeric indicator inserted before every number in the last table. Commentary updated.
18.9: Note added after first paragraph; Examples 18-22 and 18-23 switched and comments deleted.
Example 18-23, Print copy: Angle label moved to be outside of the triangle. Comment added.

- Instructions for Exercise 18 (braille file only): Item 5, last sentence deleted.
- 7-6-23 Practice 18D, first comment: Line number citations corrected.
Example 18-26: Comment to lines 10-11 expanded.
- 7-18-23 Practice 18F, braille and simbraille, lines 12-14: Displayed number line moved to the right two cells.

FINAL LESSON

- 11-11-22 *Print copy*: The size of the minus sign was standardized, throughout.
- 12-29-22 Practice C, second page of braille/simbraille: The opening switch is moved to end line 2 and deleted from line 3; Commentary added regarding line 2. The word "What" changed to "Which" on line 7.
- 4-4-23 Practice D, page a92, line 20: The Nemeth Code terminator moved to cell 1.
- 6-24-23 F2: Changed "Appendix B of the Nemeth Code" to "Appendix D of *The Nemeth Braille Code for Mathematics and Science Notation*"

APPENDIX A

- 12-29-22 *Print copy*: The size of the minus sign was standardized, throughout.
- 6-3-23 Lesson 10, print image (page A-16): Alignment of the multiplicand has been corrected.
- 6-24-23 Page aA2, *Braille copy*, line 13: "ab" moved to the beginning of line 14.
Page A-13, *Print copy*: Lesson 1, Problem 3, capitalization changed to "Counting by 8s"
Page A-13, *Print copy*: Lesson 3, par. 4, missing multiplication dot and letter a inserted.
- 8-9-23 First paragraph: In the print copy, a link was added to the Answer section.
Page A-2, Lesson 3, braille and simbraille, next-to-last line: The period after the abbreviation "m" moved in order to apply to the abbreviation.

APPENDIX B

- 12-28-22 *Print copy*: The size of the minus sign was standardized, throughout.
- 7-7-23 Typo corrected on page B-2.

APPENDIX C

- 1-28-23 The section on Placement of Code Switch Indicators was revised, most significantly in the section regarding Itemized Material.
- 3-11-23 Page C-11: Paragraph rewritten under "Switch Indicators with Displayed Mathematical Material".
Improvements made to the narrative throughout.
- 4-11-23 Narrative edited on page C-11: Unitemized Spatial Arrangements. Page C-12: Switch Indicators after a Heading (deleted reference to 4.25.2); Switch Indicators and Transcriber's Notes; Switch Indicators with Boxed Material.
- 5-27-23 Page C-5: *Exercise Set*: A paragraph was added regarding instructions. *Instructions*: The pagination guidelines were deleted and a cross reference added.
- 7-7-23 Minor wordsmithing.
- 8-9-23 Pages C-2, C-9, and C-14: Cross-references to several Lesson 11 sections corrected.