LESSON 2

- MORE ABOUT PUNCTUATION
- PUNCTUATION IN NEMETH CODE
    - The Punctuation Indicator
- INTRODUCTION TO SIGNS OF GROUPING
    - Code-Switching Considerations
    - Spacing with Signs of Grouping
- IDENTIFIERS, cont.

Format

- Keep Together—Hyphenated Expressions
- Side-by-Side Layout

Answers to Practice Material

LESSON PREVIEW

The punctuation indicator is introduced as we take a closer look at punctuation inside the switches. Summaries are given regarding the use/nonuse of the punctuation indicator. Nemeth grouping symbols are introduced. Code switching within numbered/lettered formats is discussed. Nemeth rules regarding hyphenated expressions are given. An alternate layout option for itemized material is considered.

MORE ABOUT PUNCTUATION

2.1 Punctuation Mode

Punctuation mode is determined by whether the punctuation occurs inside or outside of the Nemeth switches. The concept is simple – punctuation that occurs outside of the switch indicators is transcribed in "literary mode" according to the rules of Unified English Braille; punctuation occurring within the switch indicators is transcribed in "mathematical mode" according to the rules of the Nemeth Code. Take another look at this example from Lesson 1, noting that UEB punctuation is used for the question mark and the Nemeth comma and ellipsis are used in the mathematical portion.

Example 2-1

What is the secret clue in this series? 5.0, 8.2, 11.4, 14.6, ...

⠠⠱⠁⠞ ⠊⠎ ⠮ ⠎⠑⠉⠗⠑⠞ ⠉⠇⠥⠑ ⠔ ⠹ ⠎⠻⠊⠑⠎⠦
⠸⠩ ⠼⠢⠨⠴⠠ ⠼⠦⠨⠆⠠ ⠼⠂⠂⠨⠲⠠ ⠼⠂⠲⠨⠖⠠ ⠄⠄⠄ ⠸⠱

2.2 Spacing of UEB Punctuation and Code Switch Indicators

As shown in Lesson 1, punctuation that relates to the main text is placed outside of the switch indicators when the surrounding text is in UEB. There is no space between the terminator and the following punctuation.

Example 2-2

To begin, divide 64 ÷ 8, then subtract.

⠠⠞⠕ ⠆⠛⠔⠂ ⠙⠊⠧⠊⠙⠑ ⠸⠩ ⠼⠖⠲⠨⠌⠦ ⠸⠱⠂ ⠮⠝
⠎⠥⠃⠞⠗⠁⠉⠞⠲

Note the use of the literary comma (dot 2) outside of the Nemeth Code terminator.

Example 2-3

Divide 64 ÷ 8—then subtract.

⠠⠙⠊⠧⠊⠙⠑ ⠸⠩ ⠼⠖⠲⠨⠌⠦ ⠸⠱⠠⠤⠮⠝ ⠎⠥⠃⠞⠗⠁⠉⠞⠲

The unspaced dash is part of the sentence punctuation and is placed outside of the Nemeth Code terminator.

Example 2-4

Divide 64 ÷ 8 — then subtract.

⠠⠙⠊⠧⠊⠙⠑ ⠸⠩ ⠼⠖⠲⠨⠌⠦ ⠸⠱ ⠠⠤ ⠮⠝ ⠎⠥⠃⠞⠗⠁⠉⠞⠲

The spaced dash is part of the sentence punctuation and is placed outside of the Nemeth Code terminator. The space after the opening Nemeth Code indicator does not represent a space in print.

Example 2-5

We continue ... 8–14 = –6

⠠⠺⠑ ⠒⠞⠔⠥⠑ ⠲⠲⠲ ⠸⠩ ⠼⠦⠤⠂⠲ ⠨⠅ ⠤⠼⠖ ⠸⠱

The ellipsis is part of the sentence punctuation and is placed outside of the opening Nemeth Code indicator. A space precedes and follows the ellipsis, as printed. The space after the opening Nemeth Code indicator does not represent a space in print.

2.3 Nemeth Punctuation

When punctuation occurs within mathematical material, excessive code switching is avoided by using Nemeth punctuation. In the example below, the Nemeth comma (dot 6) is used within the series even though the comma itself is not mathematical.

⫸ 5+5, ⠼⠢⠬⠢⠠

Example 2-6

Multiplication can be expressed as a series of addition problems: $5 \times 2 = 5 + 5$,
$5 \times 3 = 5 + 5 + 5$, $5 \times 4 = 5 + 5 + 5 + 5$, and so on.

  ⠠⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠉ ⠆ ⠑⠭⠏⠗⠑⠎⠎⠫ ⠵ ⠁ ⠎⠻⠊⠑⠎ ⠷
⠁⠙⠙⠊⠰⠝ ⠏⠗⠕⠃⠇⠑⠍⠎⠒ ⠸⠩ ⠼⠢⠈⠡⠆ ⠨⠅ ⠼⠢⠬⠢⠠
⠼⠢⠈⠡⠒ ⠨⠅ ⠼⠢⠬⠢⠬⠢⠠ ⠼⠢⠈⠡⠲ ⠨⠅ ⠼⠢⠬⠢⠬⠢⠬⠢ ⠸⠱⠂ ⠯
⠎ ⠕⠝⠲

The last comma is placed outside of the switch, as a dot 2 literary comma, because UEB text follows.

Instructions: Consider carefully where to place the code switch indicators and what kind of punctuation to use in these three sentences. Apply 3-1 Nemeth paragraphing.

PRACTICE 2A

72813654, when written as 72 81 36 54, is obviously divisible by 9.

Write these numbers: 3.29, 500, –123, 2,000.88, –250,794. Now add them together.

Is the answer 4.0‰, or is it 4.0%?

PUNCTUATION IN NEMETH CODE

2.4 Background

So far we have looked at punctuation that is unambiguous in mathematical context: the mathematical comma and the short dash. These symbols are not the same as their UEB counterparts.

⫸ ⠠ Mathematical comma

⫸ ⠤⠤ Short dash

When other punctuation marks are transcribed inside the Nemeth switches, the punctuation symbols from UEB are used: the apostrophe, colon, exclamation point, period, question mark, quotation marks,* and semicolon. When a punctuation mark is not preceded by a space, clarification is required because the symbols are formed with the same braille dots as Nemeth numerals and symbols, as demonstrated in this list.

A semicolon ⠆ could be misread in Nemeth as the numeral 2.
A colon ⠒ could be misread in Nemeth as the numeral 3.
A period ⠲ could be misread in Nemeth as the numeral 4.
An exclamation point ⠖ could be misread in Nemeth as the numeral 6.
A question mark ⠦ could be misread in Nemeth as the numeral 8.
A closing “double” quotation mark ⠴ could be misread in Nemeth as the numeral 0.
A closing “single” quotation mark ⠠⠴ could be misread in Nemeth as a comma and the numeral 0.
An apostrophe ⠄ could be misread in Nemeth as a prime sign.

Clarification is achieved by use of the *punctuation indicator*.

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* Only the one-cell “double” quotation marks ⠦ ⠴ and the two-cell "single" quotation marks ⠠⠦ ⠠⠴ are used inside the Nemeth switches.

The Punctuation Indicator

2.5 Role of the Punctuation Indicator

A punctuation indicator is placed before one or more of the punctuation marks listed in the box above when such punctuation is not preceded by a space. (A punctuation indicator is not used at the beginning of a braille line or after a space.) Use of the punctuation indicator assures that the braille is read as punctuation and is not misread as a mathematical symbol.

⠸	Punctuation Indicator

⫸ 2 · 2 · 2; ⠼⠆⠡⠆⠡⠆⠸⠆

The punctuation indicator prevents the semicolon from being misread as the numeral 2.

Exceptions occur for punctuated words and abbreviations. This will be covered in Lesson 3.

Example 2-7

In this example, a comma separates member pairs; a semicolon separates sets. 2 · 2, 2 · 2 · 2; 3 · 3, 3 · 3 · 3; 4 · 4, 4 · 4 · 4.

⠠⠔ ⠹ ⠑⠭⠁⠍⠏⠇⠑⠂ ⠁ ⠉⠕⠍⠍⠁ ⠎⠑⠏⠜⠁⠞⠑⠎ ⠍⠑⠍⠃⠻
⠏⠁⠊⠗⠎⠆ ⠁ ⠎⠑⠍⠊⠉⠕⠇⠕⠝ ⠎⠑⠏⠜⠁⠞⠑⠎ ⠎⠑⠞⠎⠲ ⠀⠀⠀⠀⠀⠀
⠸⠩ ⠼⠆⠡⠆⠠ ⠼⠆⠡⠆⠡⠆⠸⠆ ⠼⠒⠡⠒⠠ ⠼⠒⠡⠒⠡⠒⠸⠆ ⠼⠲⠡⠲⠠
⠼⠲⠡⠲⠡⠲ ⠸⠱⠲

Although the opening Nemeth Code indicator will fit on line 2, the first math expression will not. With a paragraph, keep each switch indicator on the same line as the mathematics to which it applies, if it will fit. The final period applies to the entire sentence. It is placed after the Nemeth Code terminator.

2.5.1 **Two or More Punctuation Marks in a Row.** When two or more punctuation marks follow a mathematical item, only one punctuation indicator is used.

⫸ "=". ⠦⠨⠅⠸⠴⠲

⫸ "12%"—"13%" ⠦⠼⠂⠆⠈⠴⠸⠴⠤⠤⠦⠼⠂⠒⠈⠴⠸⠴

Recall from 1.7.3 that a numeric indicator is required following a dash even though that number may not be preceded by a space.

a. If a comma is the second punctuation mark, the mathematical comma is transcribed.

⫸ "–", ⠦⠤⠸⠴⠠

Example 2-8

Signs for "plus", "minus", and "equals" are "+", "−", "=". ÷ means "divided by".

  ⠠⠎⠊⠛⠝⠎ ⠿ ⠦⠏⠇⠥⠎⠴⠂ ⠦⠍⠔⠥⠎⠴⠂ ⠯ ⠦⠑⠟⠥⠁⠇⠎⠴ ⠜⠑
⠸⠩ ⠦⠬⠸⠴⠠ ⠦⠤⠸⠴⠠ ⠦⠨⠅⠸⠴⠲ ⠨⠌ ⠸⠱ ⠍⠂⠝⠎ ⠦⠙⠊⠧⠊⠙⠫
⠃⠽⠴⠲

> *A punctuation indicator is not needed for the opening quotation marks because they are preceded by a space and so will not be misread as numerals.*

b. If the first punctuation mark is a comma, a hyphen, or a short dash, a punctuation indicator is needed before the second punctuation mark provided that a punctuation indicator would be required if the first mark was removed and the space which it occupies was not present,.

⫸ 3y," ⠼⠒⠽⠠⠸⠴

because, without the comma, ⠼⠒⠽⠸⠴

⫸ "$99—" ⠦⠈⠎⠔⠔⠤⠤⠸⠴

because, without the dash, ⠦⠈⠎⠔⠔⠸⠴

2.5.2 **A Comparison Sign in Quotes.** Note that, although a space is generally left between a comparison sign and an expression which precedes or follows it, a space is not left between a comparison sign and a punctuation mark which applies to it.

⫸ "=" ⠦⠨⠅⠸⠴

Observe how this applies to the equals sign in Example 2-8, above.

2.5.3 **A Number in Quotes.** A numeric indicator is required when a numeral immediately follows an opening quotation mark.

⫸ "40+10=50" ⠦⠼⠲⠴⠬⠂⠴ ⠨⠅ ⠼⠢⠴⠸⠴

Example 2-9

Add 48+13 in your head. Think: "40+10=50" ... "8+3=11" ... "50 + 11 = 61".

  ⠠⠁⠙⠙ ⠸⠩ ⠼⠲⠦⠬⠂⠒ ⠸⠱ ⠔ ⠽⠗ ⠓⠂⠙⠲ ⠠⠹⠔⠅⠒
⠸⠩ ⠦⠼⠲⠴⠬⠂⠴ ⠨⠅ ⠼⠢⠴⠸⠴ ⠄⠄⠄ ⠦⠼⠦⠬⠒ ⠨⠅ ⠼⠂⠂⠸⠴
⠄⠄⠄ ⠦⠼⠢⠴⠬⠂⠂ ⠨⠅ ⠼⠖⠂⠸⠴ ⠸⠱⠲

> *Even though this ellipsis is not mathematical (it indicates pausing while thinking), the ellipsis of the Nemeth Code is used because it is inside the*

Nemeth switches. The final period applies to the entire sentence. It is placed after the Nemeth Code terminator.

2.5.4 **Digital Clock Time.** Digital clock time is transcribed in UEB unless the time is involved in computation or is part of a number line, in which case Nemeth Code is used. In Nemeth, a punctuation indicator precedes the colon to prevent misreading the colon as the number 3. A numeric indicator is then required to set the reading mode back to "numeric."

⋙ 3:30

UEB: ⠼⠉⠒⠼⠉⠚

Nemeth: ⠸⠩ ⠼⠒⠸⠒⠼⠒⠴ ⠸⠱

Recall from Lesson 1 that the numeric indicator is not restated when a hyphen connects Nemeth numerals.

⋙ 7:45-8:20

UEB: ⠼⠛⠒⠼⠙⠑⠤⠼⠓⠒⠼⠃⠚

Nemeth: ⠸⠩ ⠼⠶⠸⠒⠼⠲⠢⠤⠦⠸⠒⠼⠆⠴ ⠸⠱

Example 2-10

Last night, Jayquan arrived at 7:45 and left at 8:20. Use the shortcut method to figure out how many minutes he stayed. 7:45-8:20 = 15+20 = 35. Jayquan stayed for 35 minutes.

⠀⠀⠠⠇⠁⠌ ⠝⠊⠣⠞⠂ ⠠⠚⠁⠽⠟⠥⠁⠝ ⠜⠗⠊⠧⠫ ⠁⠞ ⠼⠛⠒⠼⠙⠑ ⠯
⠇⠑⠋⠞ ⠁⠞ ⠼⠓⠒⠼⠃⠚⠲ ⠠⠥⠎⠑ ⠮ ⠩⠕⠗⠞⠉⠥⠞ ⠍⠑⠮⠕⠙ ⠞⠕
⠋⠊⠛⠥⠗⠑ ⠳ ⠓⠪ ⠐⠍ ⠍⠔⠥⠞⠑⠎ ⠓⠑ ⠌⠁⠽⠫⠲
⠸⠩ ⠼⠶⠸⠒⠼⠲⠢⠤⠦⠸⠒⠼⠆⠴ ⠨⠅ ⠼⠂⠢⠬⠆⠴ ⠨⠅ ⠼⠒⠢ ⠸⠱⠲
⠠⠚⠁⠽⠟⠥⠁⠝ ⠌⠁⠽⠫ ⠿ ⠼⠉⠑ ⠍⠔⠥⠞⠑⠎⠲

It is not necessary for the digital time to be transcribed in the same code within the same word problem. UEB is used in the narrative and Nemeth is used in the computation.

2.6 Punctuation with Omission Signs

When a sign of omission represents omitted mathematical content the appropriate omission symbol of the Nemeth Code is transcribed and it is punctuated mathematically. The punctuation is unspaced from the omission symbol.

⋙ 2 × ..., ⠼⠆ ⠈⠡ ⠄⠄⠄⠠

⋙ 2 × ___. ⠼⠆⠈⠡ ⠤⠤⠤⠤⠸⠲

Take another look at this example from Lesson 1. Notice the use of the mathematical comma with the long dash.

Example 2-11

Ways to write "10": ___ + 5, ___ − 3, 2 × ___, 50 ÷ ___.

⠠⠺⠁⠽⠎ ⠞⠕ ⠺⠗⠊⠞⠑ ⠦⠼⠁⠚⠴⠒ ⠸⠩ ⠤⠤⠤⠤ ⠬⠢⠠ ⠀⠀⠀⠀
⠤⠤⠤⠤ ⠤⠼⠒⠠ ⠼⠆⠈⠡ ⠤⠤⠤⠤⠠ ⠼⠢⠴⠨⠌ ⠤⠤⠤⠤ ⠸⠱⠲

Reminders: The long dash and the ellipsis are spaced away from the multiplication symbol. Note that the omission dash is placed on the same line as the rest of the math statement "blank minus three" even though there is room for the long dash on the first line.

Example 2-12

Fill in the missing numbers in the series: 3, 6, ?, 12, ??, 18.

⠠⠋⠊⠇⠇ ⠔ ⠮ ⠍⠊⠎⠎⠬ ⠝⠥⠍⠃⠻⠎ ⠔ ⠮ ⠎⠻⠊⠑⠎⠒
⠸⠩ ⠼⠒⠠ ⠼⠖⠠ ⠿⠠ ⠼⠂⠆⠠ ⠿⠿⠠ ⠼⠂⠦ ⠸⠱⠲

Switch Decision: The general omission symbol is a Nemeth symbol. In order to avoid excess code switching, the entire series is transcribed in Nemeth even though the numerals themselves could be transcribed in either code.
Reminder: The general omission symbol is spaced according to rules of the item it represents (in this case, a numeral). The same number of omission symbols shown in print should be used in braille.

2.6.1 **Spacing Exception—The Hyphen.** Although no space is left between an ellipsis and a related punctuation mark or between a long dash and a related punctuation mark, if the punctuation mark is a hyphen then a space is required.

⋙ 40% - ___ ⠼⠲⠴⠈⠴⠤ ⠤⠤⠤⠤

⋙ ... -9.3 ⠄⠄⠄ ⠤⠼⠔⠨⠒

Example 2-13

Orchids thrive when humidity ranges from 40% - ___. ___ -80% is considered optimal for most varieties.

⠠⠕⠗⠡⠊⠙⠎ ⠹⠗⠊⠧⠑ ⠱⠢ ⠓⠥⠍⠊⠙⠰⠽ ⠗⠁⠝⠛⠑⠎ ⠋
⠸⠩ ⠼⠲⠴⠈⠴⠤ ⠤⠤⠤⠤⠸⠲ ⠤⠤⠤⠤ ⠤⠼⠦⠴⠈⠴ ⠸⠱ ⠊⠎
⠒⠎⠊⠙⠻⠫ ⠕⠏⠞⠊⠍⠁⠇ ⠿ ⠍⠕⠌ ⠧⠜⠊⠑⠞⠊⠑⠎⠲

2.7 Punctuation and Spacing of Plural or Possessive Endings

When "s" or apostrophe-s is attached to a mathematical symbol, it becomes part of that expression. This means that the "s" is punctuated mathematically.

⫸ ×s: ⠈⠡⠎⠸⠒

Example 2-14

Insert +s or insert ×s: 4 ... 2 = 8; 8 ... 2 = 10.

⠠⠔⠎⠻⠞ ⠸⠩ ⠬⠎ ⠸⠱ ⠕⠗ ⠔⠎⠻⠞ ⠸⠩ ⠈⠡⠎⠸⠒ ⠀⠀⠀⠀⠀⠀
⠼⠲ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠦⠸⠆ ⠼⠦ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠂⠴ ⠸⠱⠲

> *Reminder: A mathematical expression must not be divided between braille lines if it will fit on one line within current margins. The expression "4 ... 2 = 8" must not be divided and so it begins on line 2.*

A punctuation indicator is required before the apostrophe in a possessive ending "apostrophe-s". Even so, a punctuation indicator is still required before a punctuation mark that immediately follows the "s". Compare this similar example to the previous one.

⫸ ×'s: ⠈⠡⠸⠄⠎⠸⠒

Example 2-15

Insert +'s or insert ×'s: 4 ... 2 = 8; 8 ... 2 = 10.

⠠⠔⠎⠻⠞ ⠸⠩ ⠬⠸⠄⠎ ⠸⠱ ⠕⠗ ⠔⠎⠻⠞ ⠸⠩ ⠈⠡⠸⠄⠎⠸⠒
⠼⠲ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠦⠸⠆ ⠼⠦ ⠄⠄⠄ ⠼⠆ ⠨⠅ ⠼⠂⠴ ⠸⠱⠲

> *A punctuation indicator is needed both before the apostrophe and before the colon in ×'s:.*

The ending is unspaced from the symbol even if the symbol normally requires a space.

⫸ =s ⠨⠅⠎

⫸ ='s ⠨⠅⠸⠄⠎

Instructions: Here is a list of isolated mathematical items and punctuation marks. Transcribe an opening Nemeth Code indicator in cell 1 and continue with the first item in the list on the same line. Stay in Nemeth throughout the practice (transcribe the clock time in Nemeth). Begin each line in cell 1; begin any runovers in cell 3. Place a Nemeth Code terminator after the last item in the list.

PRACTICE 2B

+, − ; ×, ÷ .

+'s, −'s, ×'s, ÷'s; =s, >s, <s.

" :: "

5.1, 6.22, 7.333; $8.44, $9.55; $10.66.

10:45-11:25

−16 > −___ ; 16 < ___ .

$1,400 < £ _?_

5'3" ..., 6'1"—6'2" ..., 7'0".

"8 · 3 = 3 · 8"

2.8 Summary of the Use and Nonuse of the Punctuation Indicator

2.8.1 **Situations That Do Not Require a Punctuation Indicator.** A punctuation indicator is not required before any of the following punctuation marks. In these isolated examples, assume that the technical material continues after what is shown.

a. The mathematical comma never requires a punctuation indicator.

⫸ 5.0, ⠼⠢⠨⠴⠠

b. A punctuation indicator is not used before a hyphen or a dash.

⫸ 5.5-7.0 ⠼⠢⠨⠢⠤⠶⠨⠴

⫸ $47,689—2.6% ⠈⠎⠲⠶⠠⠖⠦⠔⠤⠤⠼⠆⠨⠖⠈⠴

c. A punctuation indicator is not needed if the first character following a space is a punctuation mark or if the punctuation mark begins on a new line.

⫸ "+", "−" ⠦⠬⠸⠴⠠ ⠦⠤⠸⠴

d. In a sequence of punctuation marks following a mathematical expression, the punctuation indicator precedes only the first punctuation mark.

⋙ "=". ⠦⠨⠅⠸⠴⠲

e. In the next lesson, another situation where the punctuation indicator is not required will be presented: after a word or abbreviation.

2.8.2 **Situations That Require a Punctuation Indicator.** A punctuation indicator is required after any symbol of the type listed below when Nemeth has not been terminated and the mark of punctuation is not a comma, hyphen, or dash. In the following isolated examples, assume that the technical material continues after the final punctuation mark.

a. After a numeric symbol.

⋙ 98.6. ⠼⠔⠦⠨⠖⠸⠲

⋙ "4.9" ⠦⠼⠲⠨⠔⠸⠴

b. After a long dash or after an ellipsis.

⋙ 24 = 6 + ___. ⠼⠆⠲ ⠨⠅ ⠼⠖⠬ ⠤⠤⠤⠤⠸⠲

⋙ 1, 3.1413, … . ⠼⠂⠠ ⠼⠒⠨⠂⠲⠂⠒⠠ ⠄⠄⠄⠸⠲

c. After a general omission symbol.

⋙ 15 ÷ 3 = ?. ⠼⠂⠢⠨⠌⠼⠒ ⠨⠅ ⠿⠸⠲

d. After a grouping symbol.

⋙ (".8"): ⠷⠸⠦⠼⠨⠦⠸⠴⠾⠸⠒

e. After any of the miscellaneous symbols presented so far.

⋙ 100%. ⠼⠂⠴⠴⠈⠴⠸⠲

⋙ 48¢? ⠼⠲⠦⠈⠉⠸⠦

f. After a comma, hyphen, or short dash, provided that if these were removed and the space which they occupy were not present, one of the situations above would apply.

⋙ 3y," ⠼⠒⠽⠠⠸⠴

⋙ "$99—" ⠦⠈⠎⠔⠔⠤⠤⠸⠴

Other situations where the punctuation indicator is required will be presented later in this course.

INTRODUCTION TO SIGNS OF GROUPING

2.9 Definition

In mathematical context, symbols such as parentheses, braces, and brackets are not considered to be punctuation; they are classified as signs of grouping. Here are some grouping signs commonly encountered in technical material.

⠷	`Left Parenthesis`	(
⠾	`Right Parenthesis`	)
⠨⠷	`Left Curly Brace`	{
⠨⠾	`Right Curly Brace`	}
⠈⠷	`Left Square Bracket`	[
⠈⠾	`Right Square Bracket`	]
⠨⠨⠷	`Left Angle Bracket`	⟨
⠨⠨⠾	`Right Angle Bracket`	⟩
⠳	`Vertical Bar`	|
⠳⠳	`Double Vertical Bar`	‖

More signs of grouping will be presented in Lesson 7.

2.10 Signs of Grouping with Numerals

a. The numeric indicator is not used before a numeral that immediately follows a grouping symbol.

⫸ (3)(5) ⠷⠒⠾⠷⠢⠾

Example 2-16

"Three times five" can be written this way: (3)(5).

⠦⠠⠹⠗⠑⠑ ⠐⠞⠎ ⠋⠊⠧⠑⠴ ⠉ ⠆ ⠺⠗⠊⠞⠞⠢ ⠹ ⠺⠁⠽⠒
⠸⠩ ⠷⠒⠾⠷⠢⠾ ⠸⠱⠲

These parentheses function as mathematical symbols representing multiplication, therefore a switch to Nemeth is required.

b. The numeric indicator is not used after a minus sign that immediately follows a grouping symbol.

⫸ |−8| ⠳⠤⠦⠳

Example 2-17

|−8| is spoken "the absolute value of negative eight."

⠸⠩ ⠳⠤⠦⠳ ⠸⠱ ⠊⠎ ⠎⠏⠕⠅⠢ ⠦⠮ ⠁⠃⠎⠕⠇⠥⠞⠑ ⠧⠁⠇⠥⠑
⠷ ⠝⠑⠛⠁⠞⠊⠧⠑ ⠑⠊⠣⠞⠲⠴

c. Lacking a left grouping sign, the numeric indicator is required when the numeral is preceded by a space or begins a braille line. Compare:

- ⫸ 1) ⠼⠂⠾
- ⫸ (1) ⠷⠂⠾

2.11 Punctuation with Grouping Symbols

Grouping symbols of the Nemeth Code are mathematical symbols and therefore must be punctuated mathematically. Thus, except for the mathematical comma, hyphen, and dash, a punctuation indicator must be used before a punctuation mark which follows a sign of grouping.

- ⫸ {−5}, (0), [+5]. ⠨⠷⠤⠢⠨⠾⠠ ⠷⠴⠾⠠ ⠈⠷⠬⠢⠈⠾⠸⠲
- ⫸ ("20%"), ⠷⠸⠦⠼⠆⠴⠈⠴⠸⠴⠾⠠

Example 2-18

What fractions do these percentages represent? ("20%"), ("25%"), ("50%")

⠠⠱⠁⠞ ⠋⠗⠁⠉⠰⠝⠎ ⠙ ⠘⠮ ⠏⠻⠉⠢⠞⠁⠛⠑⠎ ⠗⠑⠏⠗⠑⠎⠢⠞⠦
⠸⠩ ⠷⠸⠦⠼⠆⠴⠈⠴⠸⠴⠾⠠ ⠷⠸⠦⠼⠆⠢⠈⠴⠸⠴⠾⠠ ⠀⠀⠀⠀⠀⠀⠀⠀⠀⠀⠀
⠷⠸⠦⠼⠢⠴⠈⠴⠸⠴⠾ ⠸⠱

Switching Decision: To avoid excessive code switching, the entire string of percentages is transcribed in Nemeth, including the parentheses, quotation marks, and commas. (Reminder: A numeric indicator is required when a numeral immediately follows an opening quotation mark.) Note that, although the third percentage will fit on line 2, this would mean the Nemeth Code terminator would be alone on the next line. Because these are three separate expressions, they do not need to be all on the same line. The third expression is placed on the same line as the Nemeth Code terminator, which is the preferred layout.

2.12 Nested Grouping Symbols

When two or more grouping signs follow one another the outer set may be printed using a taller size in order to visually distinguish the nested groupings. The braille transcription does not differentiate between the sizes—regular grouping symbols are transcribed.

Example 2-19

Perform the inner computations before subtracting. $\big((4+7)-(7+4)\big)$

⠀⠀⠠⠏⠻⠿⠍ ⠮ ⠔⠝⠻ ⠉⠕⠍⠏⠥⠞⠁⠰⠝⠎ ⠆⠋ ⠎⠥⠃⠞⠗⠁⠉⠞⠬⠲
⠸⠩ ⠷⠷⠲⠬⠶⠾⠤⠷⠶⠬⠲⠾⠾ ⠸⠱

In print, the first and last parentheses are taller than the others.

Code-Switching Considerations

2.13 Enclosed Technical Material

When parentheses, brackets, braces, or quotation marks enclose isolated technical material, transcribe the paired punctuation inside the code switches.

⫸ "+" ⠦⠬⠸⠴

Example 2-20

"+" means *plus*, "−" means *minus*, and "=" means *equals*.

⠀⠀⠸⠩ ⠦⠬⠸⠴ ⠸⠱ ⠍⠂⠝⠎ ⠨⠂⠏⠇⠥⠎⠂ ⠸⠩ ⠦⠤⠸⠴ ⠸⠱
⠍⠂⠝⠎ ⠨⠂⠍⠔⠥⠎⠂ ⠯ ⠸⠩ ⠦⠨⠅⠸⠴ ⠸⠱ ⠍⠂⠝⠎
⠨⠂⠑⠟⠥⠁⠇⠎⠲

a. Recall that many UEB punctuation symbols can be used inside of the Nemeth code switches. UEB parentheses and brackets do not fall into this category. Inside the switches, Nemeth grouping symbols are transcribed, even when a grouping sign functions as a punctuation mark.

⫸ (×) ⠷⠈⠡⠾

Example 2-21

Multiplication can be printed as a dot (·) or as a cross (×).

⠀⠀⠠⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠉ ⠆ ⠏⠗⠔⠞⠫ ⠵ ⠁ ⠙⠕⠞
⠸⠩ ⠷⠡⠾ ⠸⠱ ⠕⠗ ⠵ ⠁ ⠉⠗⠕⠎⠎ ⠸⠩ ⠷⠈⠡⠾ ⠸⠱⠲

2.13.1 **Punctuation Following a Sign of Grouping.** Grouping signs of the Nemeth Code are punctuated mathematically. This rule is illustrated by expanding the previous example, continuing in Nemeth following the period.

⫸ (×). ⠷⠈⠡⠾⠸⠲

Example 2-22

Multiplication can be printed as a dot (·) or as a cross (×). 12 · 3 is just another way to write 12 × 3.

⠠⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠉ ⠆ ⠏⠗⠔⠞⠫ ⠵ ⠁ ⠙⠕⠞
⠸⠩ ⠷⠡⠾ ⠸⠱ ⠕⠗ ⠵ ⠁ ⠉⠗⠕⠎⠎ ⠸⠩ ⠷⠈⠡⠾⠸⠲
⠼⠂⠆⠡⠒ ⠸⠱ ⠊⠎ ⠚ ⠁⠝⠕⠮⠗ ⠺⠁⠽ ⠞⠕ ⠺⠗⠊⠞⠑
⠸⠩ ⠼⠂⠆⠈⠡⠒ ⠸⠱⠲

2.14 Paired Symbols

If parentheses apply to a larger phrase which begins or ends in UEB, transcribe the paired punctuation marks in UEB. Similarly, paired quotation marks should both be inside or both be outside of the switches.

Example 2-23

($1.01 is the correct answer.)

⠐⠣⠸⠩ ⠈⠎⠂⠨⠴⠂ ⠸⠱ ⠊⠎ ⠮ ⠉⠕⠗⠗⠑⠉⠞ ⠁⠝⠎⠺⠻⠲⠐⠜

To transcribe both opening and closing parentheses in UEB, the opening Nemeth Code indicator is placed just inside the opening parenthesis.

Example 2-24

Al shouted, "The answer is 99¢!"

⠰⠠⠁⠇ ⠩⠳⠞⠫⠂ ⠦⠠⠮ ⠁⠝⠎⠺⠻ ⠊⠎ ⠸⠩ ⠼⠔⠔⠈⠉ ⠸⠱⠖⠴

The opening quotation mark is in UEB. To match, the closing quotation mark is placed outside of the Nemeth Code terminator.

Example 2-25

Al shouted, "The answer is 99¢!" ($1.01 is the correct answer.)

⠰⠠⠁⠇ ⠩⠳⠞⠫⠂ ⠦⠠⠮ ⠁⠝⠎⠺⠻ ⠊⠎ ⠸⠩ ⠼⠔⠔⠈⠉ ⠸⠱⠖⠴
⠐⠣⠸⠩ ⠈⠎⠂⠨⠴⠂ ⠸⠱ ⠊⠎ ⠮ ⠉⠕⠗⠗⠑⠉⠞ ⠁⠝⠎⠺⠻⠲⠐⠜

It would be incorrect to stay in Nemeth Code to transcribe the punctuation that occurs between these two monetary items because the quotation mark and the parenthesis are paired with UEB symbols outside of the switches.

Spacing with Signs of Grouping

2.15 Spacing Inside of the Grouping Signs

Unless other rules apply, no space is left between an opening or a closing sign of grouping and the material which it encloses.

⫸ [−4] ⠈⠷⠤⠲⠈⠾

⫸ (12¢) ⠷⠂⠆⠈⠉⠾

This includes symbols which usually require spacing—no space is left between a dash, an ellipsis, a sign of comparison, or any other symbol and its sign of grouping.

⫸ (_)(x) = 4x ⠷⠤⠤⠤⠤⠾⠷⠭⠾ ⠨⠅ ⠼⠲⠭

⫸ || … || ⠳⠳⠄⠄⠄⠳⠳

⫸ (<, =, >) ⠷⠐⠅⠠ ⠨⠅⠠ ⠨⠂⠾

Example 2-26

Circle the correct comparison sign. 14 ÷ 7 (<, =, >) 14 − 7

⠠⠉⠊⠗⠉⠇⠑ ⠮ ⠉⠕⠗⠗⠑⠉⠞ ⠉⠕⠍⠏⠜⠊⠎⠕⠝ ⠎⠊⠛⠝⠲
⠸⠩ ⠼⠂⠲⠨⠌⠶ ⠷⠐⠅⠠ ⠨⠅⠠ ⠨⠂⠾ ⠼⠂⠲⠤⠶ ⠸⠱

2.15.1 **Special Case.** When a space is printed between an opening and a closing sign of grouping and that blank space does not represent an omission, the space between the grouping signs is included in the braille transcription.

Example 2-27

Angle brackets ⟨ ⟩ denote a sequence.

⠠⠁⠝⠛⠇⠑ ⠃⠗⠁⠉⠅⠑⠞⠎ ⠸⠩ ⠨⠨⠷ ⠨⠨⠾ ⠸⠱ ⠙⠢⠕⠞⠑ ⠁
⠎⠑⠟⠥⠰⠑⠲

Context will help you determine whether the print sign is an angle bracket or a "less than" or a "greater than" symbol.

2.16 Spacing Outside of the Grouping Signs

The spacing before and after an enclosed expression is subject to the spacing rules for the signs which precede or follow the enclosure.

Example 2-28

Perform the multiplication before the addition. $(4 \times 30) + (4 \times 2) = 128$

⠠⠏⠻⠿⠍ ⠮ ⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝ ⠆⠋ ⠮ ⠁⠙⠙⠊⠰⠝⠲
⠸⠩ ⠷⠲⠈⠡⠒⠴⠾⠬⠷⠲⠈⠡⠆⠾ ⠨⠅ ⠼⠂⠆⠦ ⠸⠱

Operation signs are unspaced; comparison signs are spaced.

Example 2-29

Complete the missing values in the range (0.1) ... (0.9)

⠠⠉⠕⠍⠏⠇⠑⠞⠑ ⠮ ⠍⠊⠎⠎⠬ ⠧⠁⠇⠥⠑⠎ ⠔ ⠮ ⠗⠁⠝⠛⠑
⠸⠩ ⠷⠴⠨⠂⠾ ⠄⠄⠄ ⠷⠴⠨⠔⠾ ⠸⠱

The ellipsis is spaced.

a. No space is left between an enclosed expression and a numeral when these items are part of the same expression unless other spacing rules apply. These items often appear to be spaced in print.

Example 2-30

Does $5\,(9 + 7) = (5 \cdot 9) + 7$?

⠠⠙⠕⠑⠎ ⠸⠩ ⠼⠢⠷⠔⠬⠶⠾ ⠨⠅ ⠷⠢⠡⠔⠾⠬⠶ ⠸⠱⠦

b. No space is left between an enclosed expression and another sign of grouping when these items are part of the same expression unless other spacing rules apply. These items often appear to be spaced in print.

Example 2-31

Multiply, then add. $[\,(3)\,(-1)\,] + [\,(1)\,(-3)\,]$

⠠⠍⠥⠇⠞⠊⠏⠇⠽⠂ ⠮⠝ ⠁⠙⠙⠲
⠸⠩ ⠈⠷⠷⠒⠾⠷⠤⠂⠾⠈⠾⠬⠈⠷⠷⠂⠾⠷⠤⠒⠾⠈⠾ ⠸⠱

Instructions: Format each line or sentence in print as a 3-1 paragraph in braille.

PRACTICE 2C

Is $3(-2.5)+(-4)$ the same as $3(-2.5+(-4))$?

Use a number line to illustrate this addition problem: $[-4-(-1)]+[-1-(-3)]$.

$7+(-3)+(-4)=?$

$8+|(-2)+(-3)|=?$

$|2(-7.5)|+3.2(2)=?$

The **multiplicative identify** $[sic]$ property is illustrated: $(83)(1)=83$.

A **unit set** is a set containing only one element. For example, $\{9\}$ is a unit set containing the element "9".

What is the meaning of the symbol "||" in "The answer is $\|3.1\|$"?

A finite decimal (such as 0.152) is one that stops, whereas an infinite decimal (such as $0.9999\ldots$) repeats indefinitely.

2.17 Identifiers and Braille Page Turns

As stated earlier, itemized problems may begin at the bottom of a braille page and run over to the top of the next braille page. However, if no part of the problem will fit on line 25, place the identifier at the top of the new braille page. Do not leave an identifier standing alone at the bottom of a braille page.

2.17.1 **Print Page Number Interference.** A math expression may begin in the runover cell of the line following the identifier (line 2) if the space taken up by the print page number on line 1 will not allow it to fit there. Keeping the math expression together on one braille line takes precedence.

2.18 Code Switching and Identifiers

2.18.1 **A Numbered List of Nemeth Items.** You have learned one format for itemized material: 1-3. In this layout, each identifier begins in cell 1. When a numbered list of Nemeth items follows UEB text, place the opening Nemeth Code indicator at the end of the line of text that precedes the list. (See Example 2-32.) If the opening Nemeth Code indicator does not fit at the end of the line that precedes the identified Nemeth material, place it on the next line in the runover position. Note that the code switch indicator does not take the place of the blank line that must precede the list. (See Example 2-33.) Embedded identifiers follow the same guidelines. (See Example 2-34.)

Example 2-32

Ken listed three ways to write "twelve" in a math sentence.

1. $5+7$
2. $144 \div 12$
3. $(10 \times 6) - (8 \times 6)$

```
1    ⠠⠅⠢ ⠇⠊⠌⠫ ⠹⠗⠑⠑ ⠺⠁⠽⠎ ⠞⠕ ⠺⠗⠊⠞⠑ ⠦⠞⠺⠑⠇⠧⠑⠴ ⠔
2  ⠁ ⠍⠁⠹ ⠎⠢⠞⠰⠑⠲ ⠸⠩
3
4  ⠼⠂⠸⠲ ⠼⠢⠬⠶
5  ⠼⠆⠸⠲ ⠼⠂⠲⠲⠨⠌⠂⠆
6  ⠼⠒⠸⠲ ⠷⠂⠴⠈⠡⠖⠾⠤⠷⠦⠈⠡⠖⠾ ⠸⠱
```

Line 2: The opening Nemeth Code indicator is placed at the end of the line of text when the following listed items are all in Nemeth.

Example 2-33

Ken's classmates came up with two more ways.

4. |−12|
5. 11.9 + .1

```
1   ⠀⠀⠠⠅⠢⠄⠎ ⠉⠇⠁⠎⠎⠍⠁⠞⠑⠎ ⠉⠁⠍⠑ ⠥⠏ ⠾ ⠞⠺⠕ ⠍ ⠺⠁⠽⠎⠲
2   ⠸⠩
3
4   ⠼⠲⠸⠲ ⠳⠤⠂⠆⠳
5   ⠼⠢⠸⠲ ⠼⠂⠂⠨⠔⠬⠨⠂ ⠸⠱
```

Line 2: The opening Nemeth Code indicator is placed in the runover cell of the narrative when it does not fit on the preceding line.

Example 2-34

Mental Math Find the answers without using a pencil or a calculator. (1) 75–44 (2) 30 × 80 (3) 270 ÷ 9

```
1   ⠀⠀⠘⠂⠠⠍⠢⠞⠁⠇ ⠘⠂⠠⠍⠁⠹ ⠠⠋⠔⠙ ⠮ ⠁⠝⠎⠺⠻⠎ ⠾⠳⠞ ⠥⠎⠬
2   ⠁ ⠏⠢⠉⠊⠇ ⠕⠗ ⠁ ⠉⠁⠇⠉⠥⠇⠁⠞⠕⠗⠲ ⠸⠩ ⠷⠂⠾ ⠼⠶⠢⠤⠲⠲
3   ⠷⠆⠾ ⠼⠒⠴⠈⠡⠦⠴ ⠷⠒⠾ ⠼⠆⠶⠴⠨⠌⠔ ⠸⠱
```

Line 2: Since all three problems are in Nemeth, the opening Nemeth Code indicator is placed before the first identifier.

2.18.2 **A Numbered List of Mixed Items.** Even though an identifier is not part of the math, there is no need to transcribe all of the identifiers in UEB, nor is it necessary to transcribe all of the identifiers in the same code. Each identifier is transcribed according to the rules for the code in use at the time. In a mixture of itemized UEB and Nemeth, the following suggestions are offered. By following these guidelines, the switch indicators will be placed where they are least intrusive to the flow of text and will not interfere with the alignment of the identifiers.

a. If the first two or more items in the list require Nemeth exclusively, the opening Nemeth Code indicator may be placed as shown in the previous section. Nemeth is terminated after the last math item.

Example 2-35

By understanding decimal multiplication, you can mentally calculate the products.

1. $(-0.1)\ (-0.04)$
2. $(-0.02)\ (0.3)$
3. Write a similar problem to challenge yourself.

```
1   ⠠⠃⠽ ⠐⠥⠌⠯⠬ ⠙⠑⠉⠊⠍⠁⠇ ⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝⠂ ⠽ ⠉
2 ⠍⠢⠞⠁⠇⠇⠽ ⠉⠁⠇⠉⠥⠇⠁⠞⠑ ⠮ ⠏⠗⠕⠙⠥⠉⠞⠎⠲ ⠸⠩
3
4 ⠼⠂⠸⠲ ⠷⠤⠼⠴⠨⠂⠾⠷⠤⠼⠴⠨⠴⠲⠾
5 ⠼⠆⠸⠲ ⠷⠤⠼⠴⠨⠴⠆⠾⠷⠴⠨⠒⠾ ⠸⠱
6 ⠼⠉⠲ ⠠⠺⠗⠊⠞⠑ ⠁ ⠎⠊⠍⠊⠇⠜ ⠏⠗⠕⠃⠇⠑⠍ ⠞⠕ ⠡⠁⠇⠇⠢⠛⠑
7   ⠽⠗⠋⠲
```

Line 2: The opening Nemeth Code switch indicator is placed at the end of the narrative.
Line 4: The first identifier is in Nemeth.
Line 5: Nemeth continues, and is then terminated before proceeding to the next item, which is in UEB.
Line 6: UEB resumes.

b. If only the first item in the list requires Nemeth, it is recommended that the switches be placed before and after the math portion only. In other words, the identifier will be in UEB, followed directly by an opening Nemeth Code indicator.

Example 2-36

By understanding decimal multiplication, you can mentally calculate the products.

1. $(-0.1)\ (-0.04)$
2. Write a similar problem.

```
1   ⠠⠃⠽ ⠐⠥⠌⠯⠬ ⠙⠑⠉⠊⠍⠁⠇ ⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠰⠝⠂ ⠽ ⠉
2 ⠍⠢⠞⠁⠇⠇⠽ ⠉⠁⠇⠉⠥⠇⠁⠞⠑ ⠮ ⠏⠗⠕⠙⠥⠉⠞⠎⠲
3
4 ⠼⠁⠲ ⠸⠩ ⠷⠤⠼⠴⠨⠂⠾⠷⠤⠼⠴⠨⠴⠲⠾ ⠸⠱
5 ⠼⠃⠲ ⠠⠺⠗⠊⠞⠑ ⠁ ⠎⠊⠍⠊⠇⠜ ⠏⠗⠕⠃⠇⠑⠍⠲
```

Line 4: The identifier is in UEB. The switches are placed before and after the math portion only.
Line 5: UEB resumes.

c. Similarly, within the list, when UEB is in effect at the end of an item and the beginning of the next item is in Nemeth, transcribe the identifier in UEB and then switch to Nemeth.

Example 2-37

True or False?
(1) 98.6 is normal human body temperature expressed in degrees Celsius.
(2) 50% represents the same portion as 0.5.

```
  ⠠⠞⠗⠥⠑ ⠕⠗ ⠠⠋⠁⠇⠎⠑⠦

⠐⠣⠼⠁⠐⠜ ⠸⠩ ⠼⠔⠦⠨⠖ ⠸⠱ ⠊⠎ ⠝⠕⠗⠍⠁⠇ ⠓⠥⠍⠁⠝ ⠃⠕⠙⠽
  ⠞⠑⠍⠏⠻⠁⠞⠥⠗⠑ ⠑⠭⠏⠗⠑⠎⠎⠫ ⠔ ⠙⠑⠛⠗⠑⠑⠎
  ⠠⠉⠑⠇⠎⠊⠥⠎⠲
⠐⠣⠼⠃⠐⠜ ⠸⠩ ⠼⠢⠴⠈⠴ ⠸⠱ ⠗⠑⠏⠗⠑⠎⠢⠞⠎ ⠮ ⠎⠁⠍⠑
  ⠏⠕⠗⠰⠝ ⠵ ⠸⠩ ⠼⠴⠨⠢ ⠸⠱⠲
```

Line 3: Only the decimal numeral is between the switches.
Line 6: Only the percentage is between the switches.

d. When Nemeth is in effect at the end of an item and the beginning of the next item is in UEB, place the Nemeth Code terminator at the end of the Nemeth material and transcribe the next identifier in UEB.

Example 2-38

True or False?
(1) 50% represents the same portion as 0.5.
(2) Expressed in degrees Celsius, normal human body temperature is 98.6.

```
  ⠠⠞⠗⠥⠑ ⠕⠗ ⠠⠋⠁⠇⠎⠑⠦

⠐⠣⠼⠁⠐⠜ ⠸⠩ ⠼⠢⠴⠈⠴ ⠸⠱ ⠗⠑⠏⠗⠑⠎⠢⠞⠎ ⠮ ⠎⠁⠍⠑
  ⠏⠕⠗⠰⠝ ⠵ ⠸⠩ ⠼⠴⠨⠢ ⠸⠱⠲
⠐⠣⠼⠃⠐⠜ ⠠⠑⠭⠏⠗⠑⠎⠎⠫ ⠔ ⠙⠑⠛⠗⠑⠑⠎ ⠠⠉⠑⠇⠎⠊⠥⠎⠂
  ⠝⠕⠗⠍⠁⠇ ⠓⠥⠍⠁⠝ ⠃⠕⠙⠽ ⠞⠑⠍⠏⠻⠁⠞⠥⠗⠑ ⠊⠎
  ⠸⠩ ⠼⠔⠦⠨⠖ ⠸⠱⠲
```

Line 4: Nemeth is terminated before the period.
Line 5: The identifier is in UEB, and UEB continues.

e. When Nemeth is in effect at the end of an item and the beginning of the next item is also in Nemeth, do not switch out of Nemeth code simply to transcribe the identifier. The identifier will be transcribed following Nemeth rules.

Example 2-39

True or False?
(1) 50% represents the same portion as 0.5.
(2) 98.6 is normal human body temperature expressed in degrees Celsius.

```
1    ⠠⠞⠗⠥⠑ ⠕⠗ ⠠⠋⠁⠇⠎⠑⠦
2
3  ⠐⠣⠼⠁⠐⠜ ⠸⠩ ⠼⠢⠴⠈⠴ ⠸⠱ ⠗⠑⠏⠗⠑⠎⠢⠞⠎ ⠮ ⠎⠁⠍⠑
4    ⠏⠕⠗⠰⠝ ⠵ ⠸⠩ ⠼⠴⠨⠢⠸⠲
5  ⠷⠆⠾ ⠼⠔⠶⠨⠖ ⠸⠱ ⠊⠎ ⠝⠕⠗⠍⠁⠇ ⠓⠥⠍⠁⠝ ⠃⠕⠙⠽
6    ⠞⠑⠍⠏⠻⠁⠞⠥⠗⠑ ⠑⠭⠏⠗⠑⠎⠎⠫ ⠔ ⠙⠑⠛⠗⠑⠑⠎
7    ⠠⠉⠑⠇⠎⠊⠥⠎⠲
```

Line 4: The period requires a punctuation indicator because Nemeth continues.
Line 5: The identifier uses Nemeth parentheses and the lower-cell numeral. Nemeth is terminated after the decimal numeral.

PRACTICE 2D

1) The box is 2’4” in height.
2) $5'$ is the same as $60''$
3) $12' + 15'' = 13'3''$

Format

2.19 Keep Together—Hyphenated Expressions

A hyphenated expression containing one or more mathematical components must not be divided between braille lines. Because Nemeth format rules are applied throughout a technical transcription, this rule also applies in UEB text when a numeral and a word are connected by a hyphen.

Example 2-40

The next problem uses a (1.5-to-1; 2.5-to-1; 3.5-to-1) high torque right-angle gearbox.

⠀⠀⠠⠮ ⠋⠕⠇⠇⠪⠬ ⠏⠗⠕⠃⠇⠑⠍ ⠥⠎⠑⠎ ⠁
⠸⠩ ⠷⠂⠨⠢⠤⠞⠕⠤⠼⠂⠸⠆ ⠼⠆⠨⠢⠤⠞⠕⠤⠼⠂⠸⠆
⠼⠒⠨⠢⠤⠞⠕⠤⠼⠂⠾ ⠸⠱ ⠓⠊⠣ ⠞⠕⠗⠟⠥⠑ ⠐⠗⠤⠁⠝⠛⠇⠑
⠛⠑⠜⠃⠕⠭⠲

The hyphenated expressions are not divided.

Example 2-41

Estimate how many seconds there are in a 24-hour day.

⠀⠀⠠⠑⠌⠊⠍⠁⠞⠑ ⠓⠪ ⠸⠍ ⠎⠑⠉⠕⠝⠙⠎ ⠐⠮ ⠜⠑ ⠔ ⠁
⠼⠃⠙⠤⠓⠳⠗ ⠐⠙⠲

Do not divide "24-hour".

2.20 Margins for Itemized Material with No Subdivisions—Side-by-Side Layout

When the print copy arranges itemized material side by side across the page and there are no subdivisions, the braille format is changed so that all identifiers start in cell 1.

Example 2-42

Homework for Monday

1. 30×90	2. 71×300	3. $90 \div 2$
4. $382 + 802$	5. $568 - 392$	6. $147 - 26$

```
    ⠠⠓⠕⠍⠑⠐⠺ ⠿ ⠠⠍⠕⠝⠐⠙ ⠸⠩
⠼⠂⠸⠲ ⠼⠒⠴⠈⠡⠔⠴
⠼⠆⠸⠲ ⠼⠶⠂⠈⠡⠒⠴⠴
⠼⠒⠸⠲ ⠼⠔⠴⠨⠌⠆
⠼⠲⠸⠲ ⠼⠒⠦⠆⠬⠦⠴⠆
⠼⠢⠸⠲ ⠼⠢⠖⠦⠤⠒⠔⠆
⠼⠖⠸⠲ ⠼⠂⠲⠶⠤⠆⠖ ⠸⠱
```

Note that the opening Nemeth Code indicator is placed at the end of the cell-5 heading. A discussion about code switches and headings occurs in Lesson 4.

> *For further practice, see Appendix A—Reading Practice.*

EXERCISE 2

Prepare Exercise 2 for your grader.

ANSWERS TO PRACTICE MATERIAL

PRACTICE 2A

⠀⠀⠼⠛⠃⠓⠁⠉⠋⠑⠙⠂ ⠱⠢ ⠺⠗⠊⠞⠞⠢ ⠵
⠸⠩ ⠼⠶⠆ ⠦⠂ ⠒⠖ ⠢⠲ ⠸⠱⠂ ⠊⠎ ⠕⠃⠧⠊⠳⠎⠇⠽
⠙⠊⠧⠊⠎⠊⠃⠇⠑ ⠃⠽ ⠼⠊⠲
⠀⠀⠠⠺⠗⠊⠞⠑ ⠘⠮ ⠝⠥⠍⠃⠻⠎⠒ ⠸⠩ ⠼⠒⠨⠆⠔⠠ ⠼⠢⠴⠴⠠
⠤⠼⠂⠆⠒⠠ ⠼⠆⠠⠴⠴⠴⠨⠦⠦⠠ ⠤⠼⠆⠢⠴⠠⠶⠔⠲ ⠸⠱⠲ ⠠⠝⠪ ⠁⠙⠙
⠮⠍ ⠞⠛⠗⠲
⠀⠀⠠⠊⠎ ⠮ ⠁⠝⠎⠺⠻ ⠸⠩ ⠼⠲⠨⠴⠈⠴⠴ ⠸⠱⠂ ⠕⠗ ⠊⠎ ⠭
⠸⠩ ⠼⠲⠨⠴⠈⠴ ⠸⠱⠦

PRACTICE 2B

⠸⠩ ⠬⠠ ⠤⠸⠆ ⠈⠡⠠ ⠨⠌⠸⠲
⠬⠸⠄⠎⠠ ⠤⠸⠄⠎⠠ ⠈⠡⠸⠄⠎⠠ ⠨⠌⠸⠄⠎⠸⠆ ⠨⠅⠎⠠ ⠨⠂⠎⠠
⠀⠀⠐⠅⠎⠸⠲
⠦⠰⠆⠸⠴
⠼⠢⠨⠂⠠ ⠼⠖⠨⠆⠆⠠ ⠼⠶⠨⠒⠒⠒⠸⠆ ⠈⠎⠦⠨⠲⠲⠠ ⠈⠎⠔⠨⠢⠢⠸⠆
⠀⠀⠈⠎⠂⠴⠨⠖⠖⠸⠲
⠼⠂⠴⠸⠒⠼⠲⠢⠤⠂⠂⠸⠒⠼⠆⠢
⠤⠼⠂⠖ ⠨⠂ ⠤ ⠤⠤⠤⠤⠸⠆ ⠼⠂⠖ ⠐⠅ ⠤⠤⠤⠤⠸⠲
⠈⠎⠂⠠⠲⠴⠴ ⠐⠅ ⠈⠇⠿
⠼⠢⠄⠒⠄⠄ ⠄⠄⠄⠠ ⠼⠖⠄⠂⠄⠄⠤⠤⠼⠖⠄⠆⠄⠄ ⠄⠄⠄⠠ ⠼⠶⠄⠴⠄⠄⠸⠲
⠦⠼⠦⠡⠒ ⠨⠅ ⠼⠒⠡⠦⠸⠴ ⠸⠱

PRACTICE 2C

```
  ⠠⠊⠎ ⠸⠩ ⠼⠒⠷⠤⠆⠨⠢⠾⠬⠷⠤⠲⠾ ⠸⠱ ⠮ ⠎⠁⠍⠑ ⠵
⠸⠩ ⠼⠒⠷⠤⠆⠨⠢⠬⠷⠤⠲⠾⠾ ⠸⠱⠦
  ⠠⠥⠎⠑ ⠁ ⠝⠥⠍⠃⠻ ⠇⠔⠑ ⠞⠕ ⠊⠇⠇⠥⠌⠗⠁⠞⠑ ⠹ ⠁⠙⠙⠊⠰⠝
⠏⠗⠕⠃⠇⠑⠍⠒ ⠸⠩ ⠈⠷⠤⠲⠤⠷⠤⠂⠾⠈⠾⠬⠈⠷⠤⠂⠤⠷⠤⠒⠾⠈⠾⠸⠲
  ⠼⠶⠬⠷⠤⠒⠾⠬⠷⠤⠲⠾ ⠨⠅ ⠿
  ⠼⠦⠬⠳⠷⠤⠆⠾⠬⠷⠤⠒⠾⠳ ⠨⠅ ⠿
  ⠳⠆⠷⠤⠶⠨⠢⠾⠳⠬⠒⠨⠆⠷⠆⠾ ⠨⠅ ⠿ ⠸⠱
  ⠠⠮ ⠘⠂⠍⠥⠇⠞⠊⠏⠇⠊⠉⠁⠞⠊⠧⠑ ⠘⠂⠊⠙⠢⠞⠊⠋⠽
⠨⠣⠨⠂⠎⠊⠉⠨⠜ ⠏⠗⠕⠏⠻⠞⠽ ⠊⠎ ⠊⠇⠇⠥⠌⠗⠁⠞⠫⠒
⠸⠩ ⠷⠦⠒⠾⠷⠂⠾ ⠨⠅ ⠼⠦⠒ ⠸⠱⠲
  ⠠⠁ ⠘⠂⠥⠝⠊⠞ ⠘⠂⠎⠑⠞ ⠊⠎ ⠁ ⠎⠑⠞ ⠒⠞⠁⠔⠬ ⠕⠝⠇⠽ ⠐⠕
⠑⠇⠑⠰⠞⠲ ⠠⠿ ⠑⠭⠁⠍⠏⠇⠑⠂ ⠸⠩ ⠨⠷⠔⠨⠾ ⠸⠱ ⠊⠎ ⠁ ⠥⠝⠊⠞
⠎⠑⠞ ⠒⠞⠁⠔⠬ ⠮ ⠑⠇⠑⠰⠞ ⠦⠼⠊⠴⠲
  ⠠⠱⠁⠞ ⠊⠎ ⠮ ⠍⠂⠝⠬ ⠷ ⠮ ⠎⠽⠍⠃⠕⠇ ⠸⠩ ⠦⠳⠳⠸⠴ ⠸⠱
⠔ ⠦⠠⠮ ⠁⠝⠎⠺⠻ ⠊⠎ ⠸⠩ ⠳⠳⠒⠨⠂⠳⠳ ⠸⠱⠴⠦
  ⠠⠁ ⠋⠔⠊⠞⠑ ⠙⠑⠉⠊⠍⠁⠇ ⠐⠣⠎⠡ ⠵ ⠸⠩ ⠼⠴⠨⠂⠢⠆ ⠸⠱⠐⠜
⠊⠎ ⠐⠕ ⠞ ⠌⠕⠏⠎⠂ ⠐⠱⠁⠎ ⠁⠝ ⠔⠋⠔⠊⠞⠑ ⠙⠑⠉⠊⠍⠁⠇
⠐⠣⠎⠡ ⠵ ⠸⠩ ⠼⠶⠨⠔⠔⠔⠔ ⠄⠄⠄ ⠸⠱⠐⠜ ⠗⠑⠏⠂⠞⠎
⠔⠙⠑⠋⠔⠊⠞⠑⠇⠽⠲
```

PRACTICE 2D

```
⠼⠁⠐⠜ ⠠⠮ ⠃⠕⠭ ⠊⠎ ⠸⠩ ⠼⠆⠄⠲⠄⠄ ⠸⠱ ⠔ ⠓⠑⠊⠣⠞⠲
⠼⠃⠐⠜ ⠸⠩ ⠼⠢⠄ ⠸⠱ ⠊⠎ ⠮ ⠎⠁⠍⠑ ⠵ ⠸⠩ ⠼⠖⠴⠄⠄
⠼⠒⠾ ⠼⠂⠆⠄⠬⠂⠢⠄⠄ ⠨⠅ ⠼⠂⠒⠄⠒⠄⠄ ⠸⠱
```