

## LESSON 3

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### *Format*

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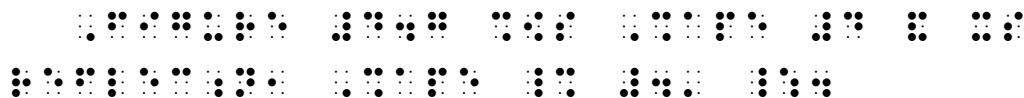
### LESSON PREVIEW

Transcription of words in mathematical context requires a close look at punctuation, capitalization, and nonuse of contractions. Abbreviations require special treatment. A single narrative word may be transcribed within the code switches by using a single-word switch indicator. Code switching at page turns is examined. "Single letters" in Nemeth are defined, and the English-letter indicator is introduced.



Example 3-4

Figure 4.7 shows Shape 4 and its reflection, Shape 4'.

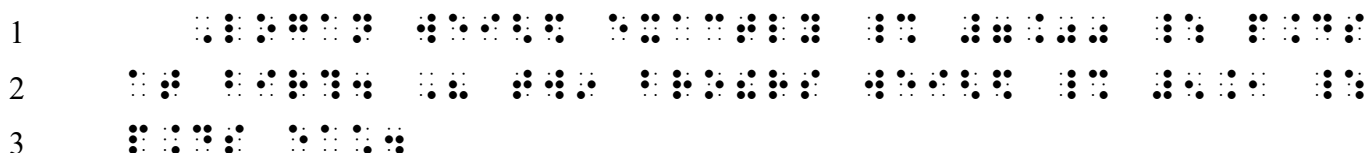


*The only item which requires a switch to Nemeth is the number with the prime sign. The word "Shape" is transcribed in UEB.*

- a. **Linage.** The word and its associated expression may fall on separate braille lines with the line wrapping at the space between them. (Note that this rule differs from an *abbreviation* associated with a Nemeth expression which will be discussed in [Section 3.4](#).)

Example 3-5

Logan weighed exactly 7.00 pounds at birth. His twin brothers weighed 5.1 pounds each.



*Lines 1 and 2: Only the decimal numbers are inside the switches.*

*Lines 2-3: The number need not appear on the same line with its associated word "pounds".*

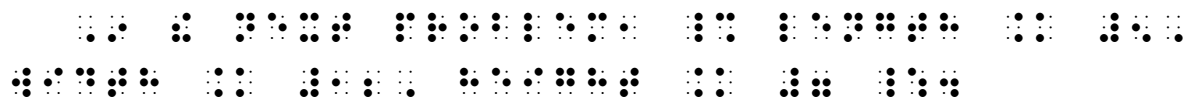
- 3.1.2 **Spoken Math.** When words are used to replace math symbols such as "plus", "equals", etc., they are transcribed in UEB. See Examples [3-15](#), [3-29](#), [3-60](#), [3-67](#), [3-72](#), and [3-78](#).

### 3.2 Words in Mathematical Context

When words are part of a math expression the words are included in the technical notation—that is, the whole expression is placed inside the Nemeth switches. No contractions are used within Nemeth switches. Spacing rules of the Nemeth code are followed.

Example 3-6

In the next problem, length = 5, width = 12, height = 7.



*The words "length" "width" and "height" are part of the equalities. Inside the switches, words are transcribed without contractions.*

In [Example 3-7](#), words are substituted for values in a formula. The division symbol is unspaced from the words according to Nemeth rules for spacing of operation signs.



**PRACTICE 3A**

- A. If 1 pound of Swiss cheese costs \$2.50, how much does 4.8 pounds cost?
  - B. JMHS's set of high-jump champions: {Terry, Leslie, Traci}
  - C. The parts of a subtraction problem are named as follows: minuend – subtrahend = difference.
  - D. Did you know that 98.6 degrees Fahrenheit is not necessarily "normal" body temperature for everyone?
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- ii. Furthermore, in the print copy the letter must be both preceded by a space or by one or more punctuation marks and followed by a space or by one or more punctuation marks.\*

These are "single letters" "y" x, "w S"

*Each letter is preceded and followed by punctuation or by a space.*

These are not "single letters" -x "wS" y+z

*The x, z, and S are not preceded by a space or by punctuation (-x is "negative x"); the y and the w are not followed by a space or by punctuation.*

- iii. Whether the leading punctuation mark is preceded by a space or not is irrelevant; whether the following punctuation mark is followed by a space or not is irrelevant.

These are "single letters" "x"+"y"

*Each letter is both preceded and followed by punctuation.*

- iv. If the space shown in print is not shown in braille, the letter is no longer a "single letter."

These are not "single letters" r + s

*Although each letter is preceded and followed by a space in print, in braille the plus sign is unspaced from the letters.*

- v. And finally, to be defined as a "single letter" the letter must not be an abbreviation nor can it be a word ("a", "A", "I", or "O").

These are not "single letters" I need 4.5 m of fabric.

*I is a word; m is an abbreviation for meters.*

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\*Nemeth grouping symbols, such as parentheses, are not considered to be punctuation marks. Rules for letters touching grouping symbols will be discussed in Lesson 4.









### 3.14 Letters as Identifiers

Letters used as identifiers are constructed according to the rules of the code which is in effect at the time—UEB or Nemeth. Compare:

Print	UEB	Nemeth
a.	⠠⠠	⠠⠠⠠⠠
B.	⠠⠠⠠⠠	⠠⠠⠠⠠⠠⠠
(a)	⠠⠠⠠⠠⠠⠠	⠠⠠⠠
(B)	⠠⠠⠠⠠⠠⠠⠠⠠⠠	⠠⠠⠠⠠
c)	⠠⠠⠠⠠	⠠⠠⠠

#### PRACTICE 3E

*Instructions:* Demonstrate the use and the nonuse of the English-letter indicator for "single letters" by transcribing this practice entirely in Nemeth. Place the opening Nemeth Code indicator in cell 1 on the first line. Begin item (a) on the next line. Place the Nemeth Code terminator at the end of the last item, on the same line.

- (a)  $r = \text{rate}$
- (b)  $"r" = \text{rate}$
- (c)  $x, y, z < 100$
- (d)  $n\text{¢} = \$4.95$
- (e)  $x > "3"$
- (f)  $a + b$
- (g)  $|y| = |-y|$
- (h)  $|x + y| = |x| + |y|$
- (i)  $P(\text{red and blue})$







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**PRACTICE 3F**

*Instructions:* Explain your decisions regarding use and nonuse of the English-letter indicator.

- (A) Prove: If  $a < b$  and  $c < 0$ , then  $ac > bc$ . Verify your proof by determining  $ac$  and  $bc$  when  $a = 5$ ,  $b = 7$ , and  $c = -4$ .
  - (B)  $j = 1, 2, \dots, n$
  - (C) 40% of  $N = 120$
  - (D) 40% of "N" = 120
  - (E) If " $rcv = rjc$ " does " $v = j$ "?
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**FORMAT SUMMARY #2**

Here is a summary of the Nemeth formats encountered in Lessons 2 and 3.

Side-by-Side Itemized Material When itemized material is arranged side by side across the page in print, the braille format is changed so that all identifiers start in cell 1. (Different rules apply to subdivisions, to embedded identifiers, and to spatial material which will be studied later.)

Keep Together—Hyphenated Expressions A hyphenated expression containing one or more mathematical components must not be divided between braille lines.

Keep Together—Mathematical Expression If a page number on line 25 or line 1 does not allow the entire mathematical expression to fit on the line, the expression must be brought down to the next line that has enough usable cells. If the expression will fit on one line but the code switch indicators will not, one or both of the indicators can be placed on a different line.

Keep Together—Abbreviation An abbreviation and a preceding or following numeral to which it applies must not be divided between braille lines.

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*For further practice, see Addendum 1—Reading Practice.*

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Submit Exercise 3 to your instructor.
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## PRACTICE 3F

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Lines 1, 2, and 4: Single letters that occur before and after signs of comparison need no English-letter indicator.

Line 3: Two-letter mathematical expressions must be transcribed in Nemeth.

Line 5: Nemeth continues and so the identifier is transcribed in Nemeth. No English-letter indicator is needed when a single letter is enclosed between grouping signs. Letter j is followed by a comparison sign—no English-letter indicator. Letter n is preceded and followed by a space—English-letter indicator required.

Line 6: Letter N is followed by a sign of comparison—no English-letter indicator.

Line 7: Letter N is preceded and followed by punctuation—English-letter indicator required even though equals sign follows.

Line 8: Nemeth continues, so the identifier is transcribed in Nemeth. The word If uses single-word switch indicator.

Line 9: Because letters v and j are each preceded and followed by punctuation, an English-letter indicator is required despite the proximity of the equals sign.