

LESSON 1

- INTRODUCTION TO CODE SWITCHING
 - Placement of the Code Switch Indicators
- THE HYPHEN AND THE DASH
- SIGNS OF OMISSION
- INTRODUCTION TO IDENTIFIERS

Format

- Keep Together—Mathematical Expression
- Margins for Narrative (3-1)
- Margins for Itemized Material with No Subdivisions (1-3)
- FORMAT SUMMARY #1

Answers to Practice Material

HOW TO PREPARE THE EXERCISES

EXERCISE 1

LESSON PREVIEW

Introduction to the rules regarding code switching and use of Nemeth code switch indicators. The hyphen and the short dash are studied. Three signs of omission are introduced: the ellipsis, the long dash, and the general omission symbol. Two Nemeth Code formats are illustrated: 3-1 narrative and 1-3 itemized material.

Do not begin Lesson 1 until you have completed the Preliminary Lesson.

Example 1-4

A scale model of the *Nautilus* as depicted in the 1954 Disney film *20,000 Leagues Under the Sea* is shown in the 1st drawing in §5.7.

§ 5.7.1. A scale model of the *Nautilus* as depicted in the 1954 Disney film *20,000 Leagues Under the Sea* is shown in the 1st drawing in §5.7.

Within this narrative sentence, the number with the internal comma is transcribed in UEB, as is the ordinal. The UEB section sign is used for the section reference.

Example 1-5

A bag contains 10 marbles: 2 purple, 4 orange, 1 yellow, and 3 green. If the bag contains 1,000 marbles, what are the chances of drawing 4 yellow marbles on the 1st draw of 12 marbles?

10 marbles: 2 purple, 4 orange, 1 yellow, and 3 green. If the bag contains 1,000 marbles, what are the chances of drawing 4 yellow marbles on the 1st draw of 12 marbles?

In this word problem, the freestanding, unmodified numbers are transcribed in UEB.

Example 1-6

Which is more: two 3's, or three 2's? There are five 2s in 10. How many 5s are in 10?

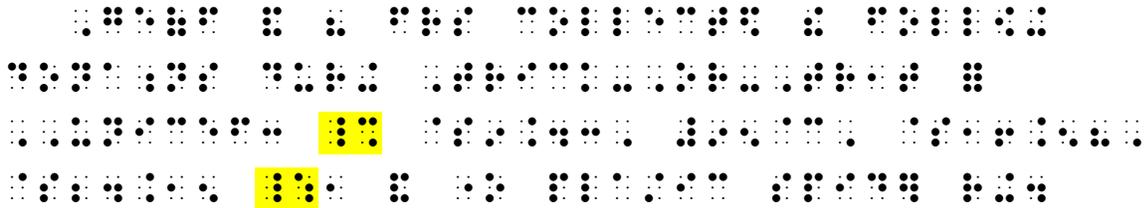
Which is more: two 3's, or three 2's? There are five 2s in 10. How many 5s are in 10?

In this word problem, plural numerals are transcribed in UEB.

- a. If two or more math expressions occur between the same code switch indicators, the line may wrap at the space between the expressions, even if the entire Nemeth portion could fit on one line.

Example 1-13

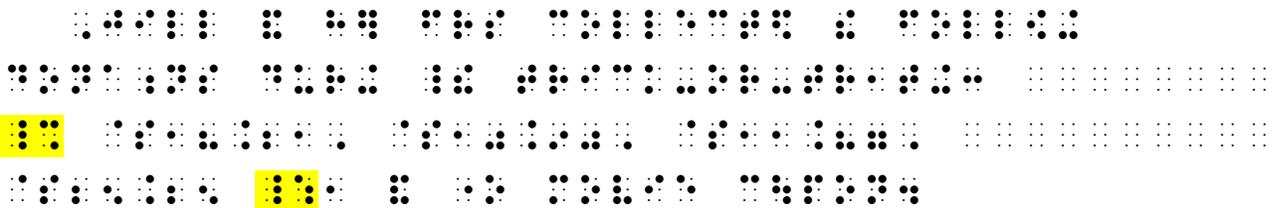
Geoff and his friends collected the following donations during Trick-Or-Treat for UNICEF: \$9.43, 95¢, \$16.58, \$24.15, and one plastic spider ring.



- b. Within a paragraph, a switch indicator should not stand alone on a line if there is room for it to fall on the line with the math expression to which it applies.

Example 1-14

Jill and her friends collected the following donations during their trick-or-treating: \$18.21, \$10.90, \$11.87, \$25.25, and one movie coupon.

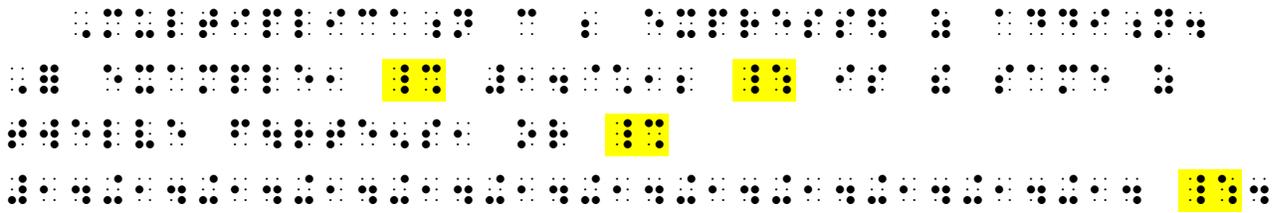


The opening Nemeth Code indicator is placed on the same line as the first dollar amount, even though there is room for just the indicator on the previous line. The last dollar amount is placed on the same line as the Nemeth Code terminator, even though there is room for just the dollar amount on the previous line.

- 1.5.2 **A Switch Indicator May Stand Alone on a Line.** If a math expression will fit on one line but there is not room for one or both of the switch indicators, one or both switch indicators may stand alone on a line. Keeping the mathematical expression intact on one line is the priority. Several layouts are illustrated below.

Example 1-15

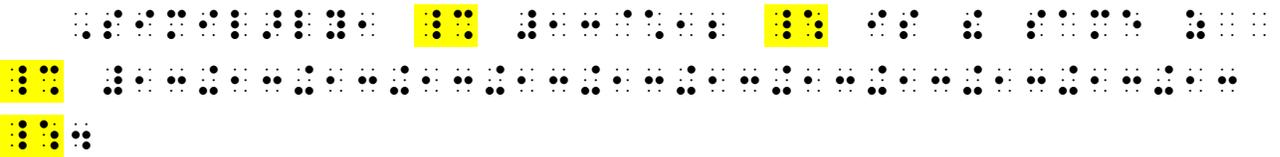
Multiplication can be expressed as addition. For example, 14×12 is the same as twelve fourteens, or $14 + 14 + 14 + 14 + 14 + 14 + 14 + 14 + 14 + 14 + 14 + 14$.



This opening Nemeth Code indicator falls on the line before the long expression.

Example 1-16

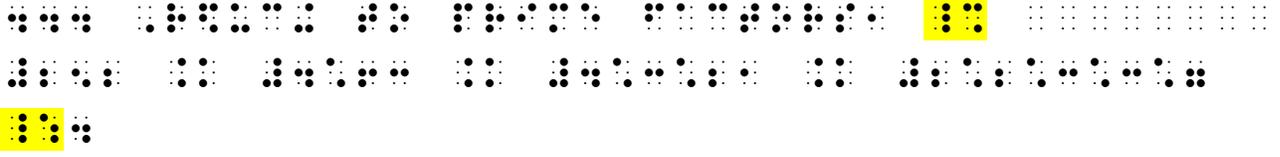
Similarly, 13×12 is the same as $13 + 13 + 13 + 13 + 13 + 13 + 13 + 13 + 13 + 13 + 13 + 13$.



The opening Nemeth Code indicator does not fit on the line before the the long expression. The Nemeth Code terminator (along with the related punctuation) falls on the line after the long expression.

Example 1-17

... Reducing to prime factors, $252 = 4 \cdot 63 = 4 \cdot 3 \cdot 21 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 7$.



Because the expression takes up the full available line width, both the opening Nemeth Code indicator and the Nemeth Code terminator fall on separate lines.

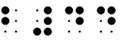
Note: A sign of comparison links the symbols on the left side of the comparison sign with the symbols on the right side of the comparison sign and so is considered to be one mathematical expression. The math portion in the example above is one expression, not four, and should not be divided between lines if it will fit on one line within the current margins.

1.5.3 **Switch Indicators at Braille Page Turns.** The effect of the opening Nemeth Code indicator is not terminated by transition to a new braille page. If, however, the switch to Nemeth occurs at a braille page turn, place the opening switch indicator on the same braille page as the mathematical material to which it applies. Similarly, the Nemeth Code terminator should be placed on the same braille page as the end of the mathematical material.

Example 1-18

... Reducing to prime factors, $252 = 4 \cdot 63 = 4 \cdot 3 \cdot 21 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 7$.

25 

1  
 2 
 3 

Although the opening switch indicator will fit after the word "factors," it would then fall on line 25 of the preceding braille page.

Example 1-19

... 36 reduces to four prime factors. $36 = 2 \cdot 18 = 2 \cdot 2 \cdot 9 = 2 \cdot 2 \cdot 3 \cdot 3$

24 
 25 

1 
 2   

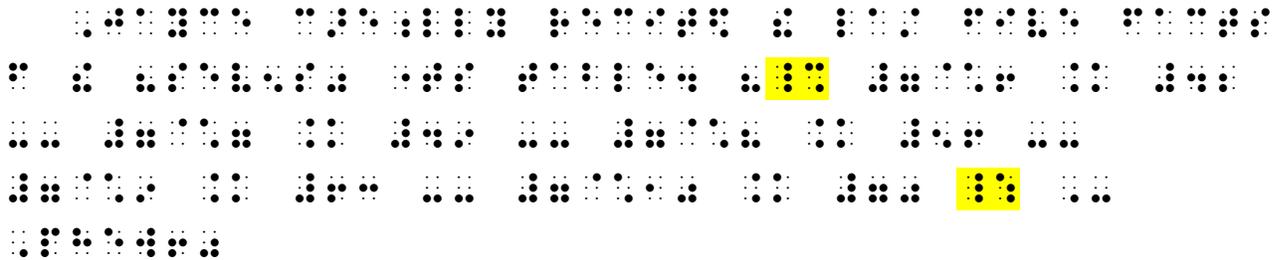
Although the opening switch indicator will fit after the word "factors," and the math would fit on line 25, the Nemeth Code terminator will not fit there because of the braille page number. Instead, the math expression and the two switch indicators are arranged so they will fall on the same braille page. This expression and its two code switch indicators will fit on one line so it begins on line 2.

Switch indicators at print page turns will be discussed in Lesson 3.

- a. Even though the symbols differ between UEB and Nemeth, you may use the two dash forms within a sentence.

Example 1-29

Jayce carefully recited the last five facts from the "sevens" times table.
 "7 × 6 = 42 — 7 × 7 = 49 — 7 × 8 = 56 — 7 × 9 = 63 — 7 × 10 = 70 — Phew!"

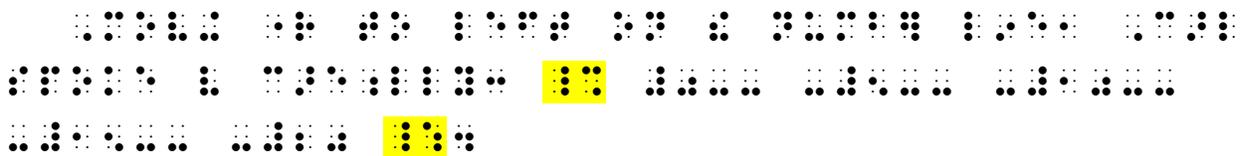


The Nemeth dash is used in the math portion, and the UEB dash is used after Nemeth is terminated. Each dash is preceded and followed by a space, as in print. Recall that the space before the Nemeth Code terminator does not represent a space in print.

- 1.7.4 **Hyphen, Dash, or Minus Sign?** Read carefully to determine whether a symbol is a hyphen, a dash or a minus/negative sign. A space must come between a hyphen and a minus sign or between a dash and a minus sign in order to distinguish the similar constructions.

Example 1-30

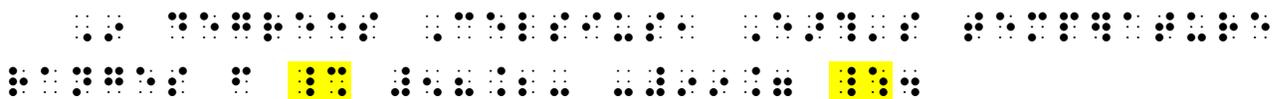
Moving right to left on the number line, Carl spoke very carefully: 0— -5— -10—
 -15— -20.



Although the numbers will fit all together on one line, they are five individual expressions and so the fullest available extent of the line is used.

Example 1-31

In degrees Celsius, Earth's temperature ranges from 58.2- -99.7.



Because a space must be inserted between the hyphen and the minus sign, a numeric indicator is required for -99.

Instructions: Treat the marginal heading as a cell-5 heading.

PRACTICE 1F

Numerical Prefixes Here are some examples of numeral prefixes: "Tetra-" means 4; "hexa-" means 6; "hepta-" means 7; "deca-" means 10; "dodeca-" means 12.

If a *dodecagon* is a 12-sided figure, a *dodecahedron* is a __-faced solid. A 10-faced solid is called a _____.

FORMAT SUMMARY #1

Here is a summary of the Nemeth formats encountered so far in this course.

General Principles When an item in a UEB transcription requires the use of Nemeth symbols, format rules of The Nemeth Braille Code for Mathematics and Science Notation are to be applied to the entire transcription including those portions transcribed in UEB. When a format is not specifically addressed in the Nemeth Code, the principles provided in *Braille Formats* should be followed.

Mathematical Expressions—Keep Together If a mathematical expression will fit on one braille line within the current margins, it must not be divided between lines. The entire expression is brought down to the next line.

Paragraph Margins for Narrative Portions of Text (3-1) In a document governed by Nemeth formatting, an unitemized paragraph in explanatory portions of text begins in cell 3 and all runovers begin in cell 1. Blocked paragraphing is not used in a Nemeth transcription. A blank line is inserted after a paragraph when itemized material follows.

Margins for Itemized Material with No Subdivisions (1-3) The identifier begins in cell 1; runovers begin in cell 3. If the material contains more than one paragraph, each subparagraph begins in cell 5 with runovers in cell 3. A blank line is inserted after itemized material when a (3-1) narrative paragraph follows.

Placement of Code Switch Indicators within Narrative Place the entire math expression and the two code switch indicators on the same braille line if they will fit within the current margins. If the entire string will not fit on one line, a switch indicator may stand alone on a line to allow the math expression to remain undivided. It is preferable to keep the switch indicators on the same braille page as the mathematical material to which they apply.

For further practice, see Appendix A—Reading Practice.

HOW TO PREPARE THE EXERCISES

Each lesson ends with an exercise which will be turned in for grading. Prepare the exercise for each lesson in the following way:

- (1) Use a 40-cell line and 25 lines per page.
- (2) Include the print page number on every page. Use the page number shown at the bottom of each exercise page. Insert page change indicators as needed. The upper-cell numerals of UEB are used for page number designations.
- (3) Include a braille page number on every page, starting each lesson exercise with braille page number 1. The upper-cell numerals of UEB are used for page number designations.
- (4) Instructions for the transcriber may precede the exercise material itself. Do not transcribe those instructions.
- (5) Transcribe the EXERCISE heading on line 1. Center that heading.
- (6) Do not use a running head. Do not divide words.
- (7) Follow general transcribing rules regarding use of the braille line—that is, use as much of the line as possible, unless a specific lineage rule applies.
- (8) Itemized problems may begin at the bottom of a braille page and continue on the next braille page. Do not force a numbered/lettered problem to begin on a new page unless other format rules apply. An identifier should not stand alone at the bottom of a braille page.
- (9) Include your name after a blank line on the last page of the exercise.
- (10) If you send electronic files, submit your first file as a brf file. Your grader will then let you know what file type is preferred. Include your name and date in the filename.

Example: LastnameInitials Ex# Date
HobartEW Ex1 3-25-22

The Study Tips on pages viii-ix (Front Matter) offer ways to get the most out of the lesson exercises.

Instructions: Prepare Exercise 1 according to the guidelines given on page 1-29. Note that this exercise includes symbols and rules from the Preliminary Lesson. *Formatting Guidance:* Center the heading EXERCISE 1 on line 1. Place the opening Nemeth Code indicator on line 3, in cell 1. Begin the list on line 4, following *simple vertical list* format from *Braille Formats*. For the items arranged in columns, arrange them as printed, following *lists in columns* from *Braille Formats*. Place the Nemeth Code terminator on the line following the end of the last Nemeth item, followed by the requisite blank line. Treat HOMEWORK PROBLEMS as a centered heading.

EXERCISE 1

$$5.3 \times 71 = 53 \times 7.1 = 376.3$$

$$14 \times .5 = 14 \div 2$$

$$.3 > .2 > -.2 > -.3$$

$$957 \div 3 - 14 = 319 - 14 = 305$$

$$46.0 < 460 > 4.6$$

$$18 - 6 - 6 < 18 + 6 - 6$$

$$94 \cdot 3 = 90 \cdot 3 + 4 \cdot 3 = 270 + 12 = 282$$

$$+5, +3, +1, 0, -1, -3, -5$$

$$\$19,343,541,768,824$$

$$9 - 26 = \qquad -4 - 15 =$$

$$50 \div 10 = \qquad 6 \div 3 =$$

$$1.8 \div 2 = \qquad -30 \div 6 =$$

$$\$7.98 \cdot 4.3\% = \qquad \$99 - 40\% =$$

$$£530 + £218 = £748, \quad £1 = \$1.31$$

$$£35 \times 1.435 = \$50.225 = \$50.23$$

$$49¢ + 49¢ < \$1.00$$

$$6 : 4.5 :: 4 : 3$$

$$13'11'' < 180''$$

$$12'10'' \div 2 = 6'5''$$

$$? + 64 + 58 + 97 = 265$$

$$-45 \div 9 = -5$$

$$7.25'' + 3.5'' + 1.5'' = 12.25'' > 1'$$

$$4:3 = 4 * 2:3 * 2 = 8:6$$

$$36,000,000 = 3.6 \times \text{-?}$$

$$1435 \times 6 = 86??$$

$$\$9.86 - \$0.07 + \$468.57 = \$478.36$$

$$41\text{¢} - 32\text{¢} = 9\text{¢} = \$\dots$$

$$.01 - .25 < -.25 - .01$$

$$55\% + 62\% = \underline{\hspace{1cm}}\%$$

$$1.141222 \dots 2 \dots$$

$$35' + 49' > 80'$$

$$8 : 15 :: 24 : \underline{\hspace{1cm}}?$$

$$51,858 \div ? = 402$$

$$.769 \qquad \qquad -.246 \qquad \qquad 79,086$$

$$99.9\% \qquad \qquad 2'11'' \qquad \qquad 83\text{¢}$$

$$548,712 \qquad \qquad 365 \div 12 \qquad \qquad 68.94$$

$$-6.87 \qquad \qquad 0 \qquad \qquad -4 > -5$$

$$97.6'' \qquad \qquad +.54 \qquad \qquad \$0.84$$

$$72\text{‰} \qquad \qquad +33.8 \qquad \qquad -45.67$$

HOMWORK PROBLEMS

1. A box measures 2'4" in height. Express the height in inches only.
2. **Rounding:** Round 79¢ to the nearest dollar. Round 5.16 to the nearest hundredth. Round 3,794 to the nearest ten.
3. The 2nd decimal place represents 100ths. Does .014 indicate 14 hundredths or 1.4 hundredths?
4. The ratio 12 : 15 is the same as $12 \div 3 : 15 \div 3 = 4 : 5$ or "4 out of 5".
Similarly, 4 : 5 is equivalent to $4 \times 20 : 5 \times 20 = 80 : 100$ or "80 out of 100" which—expressed as a percent—is ____%.
5. An *integer* is a positive or negative whole number, or zero. Is -3 an integer? Is 0?
6. As of August 2016, the world population estimate was 7.4 billion humans. The "worldometer" estimated 7 454 043 645 at noon on September 30th.

Mental Multiplication: To solve the problem 67×46 , think of 67 as $60 + 7$ and think of 46 as $40 + 6$. Now simply multiply each number by the other, $60 \cdot 40$, $60 \cdot 6$, $7 \cdot 40$, $7 \cdot 6$, and then add the products: $2400 + 360 + 280 + 42 = 3082$.

- A. There must be a better way to write the number
0.00111122223333444455556666777788889999!
- B. One DVD costs 10.52 euro. How much will five DVDs cost? $\text{€}10.52 \times 5 = \text{€}52.60$
- C. In Exercise 9.7, each expression in your answer must include at least three of the four basic operations: $+$ $-$ \times \div
- D. The sample size, 2.0791812460, rounds to 2.
- E. On a number line, show that -4 is the opposite of $+4$.
- F. Never divide 0 by 0.
- G. List the numbers from .01-.25 on the whiteboard.
- H. Is $6 \cdot 7 \cdot 8$ the same as $8 \cdot 7 \cdot 6$? What rule supports your answer?
- I. Todd just celebrated his 18th birthday. In what year was he born?
 $2022 - 18 = ?$
- J. **True/False** $14 - 2 < 1$, $15 > 9$, $6 + 3 < 7$, $-5 > 3$