Nemeth Code of Braille Mathematic NEMETH, ABRAHAM

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The Following Pages Contain Selections

from the

NEMETH CODE of BRAILLE MATHEMATICS by Abraham Nemeth

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SELECTIONS FROM THE NEMETH CODE OF BRAILLE MATHEMATICS

In the presentation of mathematical expressions in Braille, a choice must be made between the symbols and usages followed in Standard English Braille and those of the Nemeth Code of Braille Mathematics, based on whether the material being embossed is primarily literary or mathematical in nature.

LITERARY TEXTS - When writing mathematical expressions in common use or of frequent occurrence, for which provision has been made as a regular part of Standard English Braille, the symbols and usages provided in that system should be employed. Such expressions include Arabic and Roman numerals, letters, decimals, common fractions, mixed numbers, percentages, amounts of money, definite points of time and the like. The marks of punctuation provided in Standard English Braille should then be used.

MATHEMATICAL TEXTS - In writing literary expressions in texts which, in purpose or context, are predominantly mathematical, the symbols and usages of the Nemeth Code should be employed. In texts which deal with mathematical subject matter but in which a literary format is employed (such as physics and chemistry texts, radio handbooks and the like), a note at the beginning of the text or a footnote in an appropriate place should be included to the effect that the symbols and usages of the Nemeth Code are being followed. Digitized by the Internet Archive in 2012 with funding from Lyrasis Members and Sloan Foundation

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If it is necessary to interpolate a literary word or phrase into a mathematical text whose representation is in accordance with the symbols and usages of the Nemeth Code, the rule for leaving two blank spaces before and after such words or phrases should be observed.

PUNCTUATION - In punctuating mathematical expressions, the Standard English Braille punctuation signs should be employed subject to the following rules:

a. When mathematical expressions are written in accordance with the usages of Standard English Braille, the rules regarding punctuation in that system should be observed.

b. When mathematical expressions are written in accordance with the usages of the Nemeth Code, the punctuation signs are the same as those used in Standard English Braille, but such signs must be preceded by the symbol (dot 6).

In the writing of literary texts, the symbols and rules of usage provided in Standard English Braille should be observed. In the writing of mathematical texts, the following symbols and usages should be employed:

THE DIGITS - When the digits are represented within a text which is wholly or predominantly mathematical, or as part of an expression not written according to Standard English Braille, they are represented by the ten lower signs corresponding to the letters from <u>a</u> to <u>j</u>. Thus:

represent, respectively, the digits 1 2 3 4 5 6 7 8 9 0.

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For example:

•••••••	6 00 0 . 0 0	••••••••••••••••••••••••••••••••••••••
represent, respectively,		
27	145	1952
· • • • • • • •	- 3 6 - ý 6 0 - - 9 9 0 6	• • • • • • • • • • • • • • • •

Note, in the last example above, the dot 6 preceding the period cannot be mistaken for a comma, since every comma which divides a number must be followed by exactly three digits.

DIVISION OF LONG NUMBERS - No number should be divided at the end of a line unless it is unusually long. In no case, however, may the division be made other than after the comma. When a number is divided, the comma at the end of the line serves as sufficient indication that the number is continued on the next line. For example:

> 32,625,000,000,000,000,000, 000,000.

-3-

THE DECIMAL POINT - The decimal point is represented by the sign (dots 4-6). For example: 3.14159 3,006.409

THE RECURRING DECIMAL - The recurring decimal point is represented by the sign (dots 4-5-6. It is used in addition to the usual decimal point and in the proper position. For example:

means 3.3333 etc. (3.3)

THE DOLLAR SIGN (\$) - The dollar sign is represented by the sign (dots 2-5-6, 3-4-5-6). As in ink print, it precedes the quantity to which it refers. For example:

means \$100

•••••••••• means \$3.98

THE CENT SIGN (ϕ) - The cent sign is represented by the symbol (dots 1-4, 3-4-5-6). This sign should only be used to express amounts less than a dime, including the decimal parts of a cent, or w hen indicated in the ink-print text. Contrary to inkprint usage, this sign precedes the quantity to which it refers. For example:

means 8¢

means .5d (5/10ths of a cent)

56-740

ne sign for mills (dots 1-3-4, 3-4-5-6) is seldom used.

THE PER CENT SIGN (%) - The Standard English Braillo per ent sign (dots 2-5, 1-2-3-4) is used when it is to be pllowed by a number represented according to the rules of Standard nglish Braille. When, however, a percentage is to be represented y means of symbols provided by the Nemeth Code, the sign

means 5%

CONFORMITY WITH INK-PRINT USAGE - When names of units are bbreviated in ink print, the same abbreviations should be used in raille. However, such abbreviations should not be contracted by he use of the Standard English Braille contractions. When, in nk print, an abbreviation follows the unit to which it applies, his is also the case in Praille. When an abbreviation precedes he quantity to which it refers in ink print, this is also the case n Braille. In either case, the abbreviation and its value should e written without a space between. For example:

means 3 ft.

means 2.54 centimeters.

It should be noted, however, that no special Braille equialent is provided for the small, elevated single and double strokes sed in ink print to represent feet and inches and minutes and

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econds; rather, the abbrevistions given in the following section hould be used in their places.

ABBREVIATIONS - Abbreviations relating to linear measure, ime, weight, liquid, dry, etc. are as in ink print, except that they are not capitalized.

Acres(a)Barrels(bbl)Bushels(bu)Centimeters(cm)Cubic Inches(cu. in.)

SEQUENCE OF RELATED TERMS - Where Standard English Braille usage is employed, the abbreviation and unit of value for the largest quantity are written first, followed successively by the smaller quantities, each preceded by the numeral sign and written without intervening spaces. For example:

means 35°0'45" (35 degrees, 0 minutes, 45 seconds)

means 4 yds, 2 ft, 3 in

means 3 hrs, 20 min, 4 sec

In writing such sequences according to the Nemeth Code, the unit of value of the largest quantity and its abbreviation are written first, followed immediately without a space by the quantity of the second smaller unit, followed without spacing by the

-6-

And the Product of the second

quantities of the successively smaller units each preceded by dot 3. Where intervening submultiples are omitted, zeros should be inserted in their places in order to preserve the order of succession. If, however, there is any doubt as to missing submultiples, the abbreviation for each submultiple should be used in place of dot 3. For example:

Exceptions to these rules for both literary and mathematical Braille occur in writing decimal and sterling coinage, and in expressing a definite point of time when the Standard English Braille number sign and numbers should always be used and the colon (dots 2-5) should be placed between the hours and minutes without a space. For example:

> means 3:20 (twenty minutes past three) means & 6/-/2 (6 pounds, 2 pence)

> > -7-

SIGNS OF OPERATION USED IN ARITHMETIC: Plus Sign (+) (dots 3-4-6). Examples: means 2 + 3 ineans x + y Minus Sign (-) (dots 3-6). Examples: means 7 - 4means 2a - 3b Multiplication Sign (X) (dots 1-6). Example: means 3 X 5 Fraction Line (___) dots 3-4). Example: means $\frac{4}{7}$ (the fraction 4 over 7, whether in ink print, the fraction line is represent ed by the horizontal line or by the diagonal stroke.

For the manner in which fractions are represented in this system, see Sections 25-30, pages 11-13, (Br. ed., pages 24-30). See also Section 48, page 19, (Br. ed., page 43) for the diagonal stroke.

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Division Sign (\div) (dots 3-4, 3-4). Examples: means $47 \div 7$ (49 divided by 7)

means $2x \div 3y$ (2x divided by 3y)

The Sign for "Divided Into" () - This is a sign used particularly in arithmetic. The sign (dots 1-3-5) is used to separate the divisor from the dividend, while the sign (dots 2-4-6) is placed after the dividend and may be followed by the quotient. For example:

> means 17)239(means 8) 60 (7.5

 SYMBOLS OF COMPARISON USED IN ARITHMETIC:

 Equality Sign (=)

 \vdots
 \vdots
 <

web = 1

"As" Sign (: :) - The double colon in ink print represents "as" when used in a proportion. In Braille, it is sufficient to express this symbol by the quality sign as in the above expression. If, however, it becomes necessary or desirable to express this symbol explicitly, the symbol (dots 5-6, 2-3) is used. Thus, the above example may be written as follows:

means 1:2 :; 3:6

REPRESENTATION OF FRACTIONS:

Simple Fractions - When a fraction contains a single term in its numerator and a single term in its denominator, it is represented simply by writing the numerator and the denominator separated by the fraction line. For example:

means 2/3 (two-thirds)

Mixed Numbers - When writing a mixed number, the sign separates the integral part from the fractional part. When it is necessary to show the ending of the fraction part, the sign is used. For example:

> means 1-1/2 means 2-2/3 3-1/4

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REPRESENTATION OF LETTERS:

Small Roman Letters or Numerals - Letters of the Roman alphabet are represented in this system by the same signs which represent them in Standard English Braille. For example:

> means 2x means 7ab

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