LESSON 17

Read about this PROVISIONAL EDITION in the front matter to this book. Check the NFB website periodically for updates to this lesson.

- TABLES
  - Boxed Tables
- FIGURES AND DIAGRAMS
- KEYING TECHNIQUE
- CHEMISTRY
- REFERENCE SYMBOLS

TABLES

An introduction to table format in technical materials was given in Lesson 6. Stem-and-leaf plots were studied in Lesson 15. Further rules which apply to technical tables are illustrated in this lesson.

17.1 Structure of Tables: Tables consisting entirely of words are transcribed in UEB. When mathematical data occur in the table, code switching decisions depend upon the content of the entire table and the spacing restrictions encountered on the braille page. Details concerning the layout of the columns and rows are provided in Braille Formats, including strategies to consider when a table is too wide to fit within the margins of the braille page.

17.2 Table Label and Title: Follow appropriate rules according to the Nemeth Code or UEB in table labels and titles, switching to Nemeth Code only when necessary.

Example 17.2-1 (Table label and title only)

Table 2-3. MINIMUM TOLERANCE LEVELS

The table label and the table title are not mathematical. UEB is used.

Example 17.2-2 (Table title only)

DIVISION (÷) TABLE

Only the math symbol requires a switch to Nemeth Code.
17.3 Column Headings: Follow appropriate rules according to the Nemeth Code or UEB for column headings, switching to Nemeth Code only when necessary.

Example 17.3-1 (Column headings only)

<table>
<thead>
<tr>
<th>Ambient Temperature (°C)</th>
<th>Volts</th>
<th>Ambient Temperature (°F)</th>
</tr>
</thead>
</table>

Only the degree designations are mathematical. (Column headings may be abbreviated in order to fit in the limited space. A transcriber's note is not required when the abbreviation is easily identifiable. See Braille Formats for further details.)

17.4 Table Entries: Table entries may not require a switch to Nemeth Code, or they may be entirely mathematical, or they may contain a mixture of UEB and Nemeth Code.

17.4.1 Tables in UEB: When entries do not require a switch to Nemeth Code, the table may be brailled entirely in UEB.

Example 17.4-1

<table>
<thead>
<tr>
<th>Week</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>60</td>
</tr>
</tbody>
</table>

17.4.2 Tables in Nemeth Code: When entries are entirely mathematical, the opening Nemeth Code indicator is placed at the margin (cell 1) of the line following the column separation line. The entries begin on the next line. The Nemeth Code terminator follows the last line of entries, placed at the margin (cell 1).

Example 17.4-2

FARADS, AMPERES, AND OHMS

<table>
<thead>
<tr>
<th>Prefix factor</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10^{-12}$</td>
<td>$1\text{pF} = 10^{-12}\text{F}$</td>
</tr>
<tr>
<td>$10^{-6}$</td>
<td>$1\text{μA} = 10^{-6}\text{A}$</td>
</tr>
<tr>
<td>$10^3$</td>
<td>$1\text{kΩ} = 1000\text{Ω}$</td>
</tr>
</tbody>
</table>
Each abbreviation is spaced according to the rules of the Nemeth Code.

17.4.3 Code Switching Decisions: A table may be more clearly presented by brailling it entirely in Nemeth Code even when some entries do not require a switch.

Example 17.4-3  (All table entries brailled in Nemeth Code)

<table>
<thead>
<tr>
<th>Score</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>####</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>####</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>####</td>
<td>12</td>
</tr>
</tbody>
</table>

Digits in column three are left-adjusted in the print table; the same alignment is followed in braille.
When a mixture of narrative entries and mathematical data occur in the table, a switch to Nemeth Code may be applied only where needed.

**Example 17.4-4**  (Table entries brailled in both codes)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning in Arithmetic</th>
<th>Meaning in Set Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>plus</td>
<td>disjoint union</td>
</tr>
<tr>
<td>–</td>
<td>minus</td>
<td>complement</td>
</tr>
<tr>
<td>×</td>
<td>times</td>
<td>Cartesian product</td>
</tr>
<tr>
<td>/</td>
<td>divided by; over</td>
<td>quotient set</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>SYMBOL</th>
<th>SYMBOL</th>
<th>SYMBOL</th>
<th>SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>+</td>
<td>_+</td>
<td>_+</td>
</tr>
<tr>
<td>–</td>
<td>–</td>
<td>_–</td>
<td>_–</td>
<td>_–</td>
</tr>
<tr>
<td>×</td>
<td>_×</td>
<td>_×</td>
<td>_×</td>
<td>_×</td>
</tr>
<tr>
<td>/</td>
<td>_/</td>
<td>_/</td>
<td>_/</td>
<td>_/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>SYMBOL</th>
<th>SYMBOL</th>
<th>SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>_+</td>
<td>_+</td>
<td>_+</td>
</tr>
<tr>
<td>–</td>
<td>_–</td>
<td>_–</td>
<td>_–</td>
</tr>
<tr>
<td>×</td>
<td>_×</td>
<td>_×</td>
<td>_×</td>
</tr>
<tr>
<td>/</td>
<td>_/</td>
<td>_/</td>
<td>_/</td>
</tr>
</tbody>
</table>
Instructions: Do not braille tables side-by-side even though they are printed in this manner. The first table has a table label and a caption—start in cell 7 with runovers in cell 5. The second table has a heading—center the heading. The third table is introduced with narrative text. If the body of the table can be transcribed entirely in UEB, do so.

**PRACTICE 17A**

*Table 17.1-5  Values and iterations of e.  RTD TABLE*

<table>
<thead>
<tr>
<th>e</th>
<th>e²</th>
<th>S</th>
<th>R</th>
<th>T</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>6</td>
<td>30</td>
<td>t+2</td>
<td>30(t+2)</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>24</td>
<td>45</td>
<td>t</td>
<td>45t</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>96</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Here is a table of values for $y = x^2 - 3$.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>-2</td>
</tr>
<tr>
<td>0</td>
<td>-3</td>
</tr>
<tr>
<td>1</td>
<td>-2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
### 17.5 When Row Headings are Words:
When table entries consist of technical material but the row headings are words, to minimize the use of code switch indicators the entire table (excluding the table title and column headings) is considered to be technical material. Words within the table are brailled without contractions. The single-word switch indicator is not used.

**Example 17.5-1**  (Row headings and all table entries brailled in Nemeth Code)

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Cost per Unit</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shin guards</td>
<td>3</td>
<td>$5.09</td>
<td>$15.27</td>
</tr>
<tr>
<td>Cleats</td>
<td>2</td>
<td>$28.89</td>
<td>$57.78</td>
</tr>
<tr>
<td>Soccer ball</td>
<td>4</td>
<td>$12.54</td>
<td>$50.15</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*Other rules of note in this table: The transcriber's note regarding blank entries is required. The table is preceded and followed by a blank line. Dollar amounts are aligned by place value in print; the same alignment is followed in braille. The long dash of the Nemeth Code is used for blank entries that are to be filled in.*
### PRACTICE 17B

Table A.7

<table>
<thead>
<tr>
<th>Group</th>
<th>Light</th>
<th>5 days</th>
<th>10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>12</td>
<td>70.3 ± 2</td>
<td>90 ± 10.5</td>
</tr>
<tr>
<td>Test</td>
<td>12</td>
<td>60.4 ± 1.5</td>
<td>78 ± 7.9</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>75.7 ± 8</td>
<td>100 ± 3</td>
</tr>
<tr>
<td>Test</td>
<td>16</td>
<td>52.2 ± 2</td>
<td>81 ± 6.7</td>
</tr>
</tbody>
</table>

### Boxed Tables

17.6 Code Switching and Box Lines: Box lines may be brailled in either code. Rules regarding box lines are given in *Braille Formats*. Code switching considerations are discussed below.

17.6.1 Switching Within the Table: When only the body of the table is in Nemeth Code, the bottom box line is brailled on the line following the Nemeth Code terminator.

Example 17.6-1

<table>
<thead>
<tr>
<th>Constraints</th>
<th>$D_f(\bar{f})$</th>
<th>Time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>[5694.6]</td>
<td>2.0s</td>
</tr>
<tr>
<td>Violated</td>
<td>[5866.1]</td>
<td>1.0s</td>
</tr>
</tbody>
</table>

---

The abbreviation "s" in column 3 is spaced according to the rules of the Nemeth Code.
17.6.2 Switching Within the Box Lines: For boxed material that is transcribed completely in Nemeth Code, the opening Nemeth Code indicator is included at the beginning of the top box line, followed by a blank space. The Nemeth Code terminator is included at the end of the bottom box line, preceded by a space.

Example 17.6-2

<table>
<thead>
<tr>
<th></th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-3</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>-3</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

The negative sign dictates use of Nemeth Code in this table of values. Values are left-justified in each column.

Example 17.6-3

Instructions: Select inputs that have exact outputs.

<table>
<thead>
<tr>
<th></th>
<th>f(x) = \sqrt{x}</th>
<th>(x, f(x))</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 0</td>
<td>0</td>
<td>(0, 0)</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>(1, 1)</td>
</tr>
<tr>
<td>3</td>
<td>1.7</td>
<td>(3, 1.7)</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>(4, 2)</td>
</tr>
<tr>
<td>7</td>
<td>2.6</td>
<td>(7, 2.6)</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>(9, 3)</td>
</tr>
</tbody>
</table>
17.6.3 Technical Material Before or After a Box: If technical material immediately precedes or follows the box, the code currently in use continues through the box line.

Example 17.6-4  (Nemeth Code begins in material before the box.)

The table below shows values for the line \( y = 2x - 3 \).

<table>
<thead>
<tr>
<th>IN (x)</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT (y)</td>
<td>-9</td>
<td>-7</td>
<td>-5</td>
<td>-3</td>
<td>-1</td>
<td>1</td>
</tr>
</tbody>
</table>

Nemeth Code begins before the technical material preceding the box and is terminated at the end of the bottom box line.
Example 17.6-5  (Nemeth Code continues after the box.)

\[ y = 2x - 3 \]  is the line represented by the table above.

\[
\begin{array}{ccccccc}
\text{IN (x)} & -3 & -2 & -1 & 0 & 1 & 2 \\
\text{OUT (y)} & -9 & -7 & -5 & -3 & -1 & 1 \\
\end{array}
\]

17.6.4 Placement of Transcriber's Note:  A transcriber's note that may be needed for boxed material that is transcribed completely in Nemeth Code should be transcribed outside the box.

Example 17.6-6  

**Equivalent Fractions**

\[
\begin{array}{cccccc}
0 & 0 & 0 & 0 & 0 \\
12 & 6 & 4 & 3 & 2 \\
2 & 1 \\
12 & 6 \\
4 & 2 & 1 \\
12 & 6 & 3 \\
6 & 3 & 2 & 1 \\
12 & 6 & 4 & 2 \\
8 & 4 & 2 \\
12 & 6 & 3 \\
10 & 5 \\
12 & 6 \\
12 & 6 & 4 & 3 & 2 \\
12 & 6 & 4 & 3 & 2 \\
\end{array}
\]
PRACTICE 17C

1) Given exponent $x$, compute the value of $y$ by completing the tables.

a) 

<table>
<thead>
<tr>
<th>$x$</th>
<th>$2^x = y$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>$2^{-1} = y$</td>
<td>?</td>
</tr>
<tr>
<td>2</td>
<td>$2^2 = y$</td>
<td>?</td>
</tr>
</tbody>
</table>

b) 

<table>
<thead>
<tr>
<th>$x$</th>
<th>$2^{x+1} = y$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>$2^4 = y$</td>
<td>?</td>
</tr>
<tr>
<td>6</td>
<td>$2^7 = y$</td>
<td>?</td>
</tr>
</tbody>
</table>
Table Rules Specific to the Nemeth Code

17.7 Table of Numbers: When row headings and entries in a table consist entirely of numerals the numeric indicator is omitted. The numerals may contain interior commas or decimal points but may not contain any other symbol. This rule applies only to the body of a table and not to the column headings. A transcriber's note is not required to explain the omitted numeric indicator.

Example 17.7-1

<table>
<thead>
<tr>
<th>×</th>
<th>0.1</th>
<th>0.2</th>
<th>0.3</th>
<th>0.4</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
</tr>
<tr>
<td>0.2</td>
<td>0.02</td>
<td>0.04</td>
<td>0.06</td>
<td>0.08</td>
<td>0.1</td>
</tr>
<tr>
<td>0.3</td>
<td>0.03</td>
<td>0.06</td>
<td>0.09</td>
<td>0.12</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Clarification: This rule does not apply to tables whose entries include words, letters, or other mathematical signs such as the dollar sign, percent sign, prime, fraction line, etc. In such tables, the numeric indicator must be used throughout the table according to the rules of the Nemeth Code. The minus symbol, general omission symbol, ellipsis, and long dash are not numeric. If any of those symbols occur in a table, the numeric indicator must be used throughout the table. If guide dots are needed within any column, the use of the numeric indicator for numeric entries in all columns must follow the rules of the Nemeth Code.
Because entries include a decimal point, the table is brailled in Nemeth Code. Because guide dots are needed, numeric indicators must be brailled.

**Instructions:** Apply the rules regarding use/nonuse of the numeric indicator as taught in this lesson. If the body of the table can be transcribed entirely in UEB, do so. Do not braille tables side-by-side even though they are printed in this manner.

**PRACTICE 17D**

Create one table which combines data from the three tables below.
FIGURES AND DIAGRAMS

Instructions for producing figures, diagrams, and number lines are given in the BANA publication *Guidelines and Standards for Tactile Graphics*. A statement is required on the Transcriber’s Notes page saying that *Guidelines and Standards for Tactile Graphics* is used in the preparation of the tactile graphics, giving the year the guidelines were adopted.

17.8 Which Code? Titles for figures and diagrams are transcribed in UEB. When diagram labels do not require a switch to Nemeth Code, UEB continues through the diagram.

*Example 17.8-1*  
Figure 1.4-2.

![Diagram](image)

These figure labels are brailled in UEB because they are freestanding, unrevised numbers. A blank line precedes and follows the diagram.

17.8.1 Letters Used as Diagram Labels: When a single English letter in regular type is used as a label in a diagram, and when the labels are brailled in UEB, the Grade 1 indicator is required if the letter is in lowercase (even letters a, i, and o). If the letter is capitalized, the Grade 1 indicator is omitted.

*Example 17.8-2*

![Diagram](image)

These figure labels are brailled in UEB because they are freestanding, unmodified letters.
17.9 Switch Indicators and Tactile Graphics: When a tactile graphic contains material that requires Nemeth Code, and when the preceding text is already in Nemeth Code, Nemeth Code continues to be in effect for the graphic.

Example 17.9-1 Explain how the diagram illustrates the Pythagorean equation, $a^2 + b^2 = c^2$.

If the preceding text is in UEB and if a switch to Nemeth Code must be made for the tactile graphic, the opening switch indicator may be placed in cell 1 on the line before the required blank line ...

Example 17.9-2 Triangle 3
... or the switch indicator may be placed at the end of the preceding text.

*Example 17.9-3*  Is this shape a square or a rectangle? How do you know?

![Diagram of a square or rectangle]

In Nemeth Code, when a diagram label is a single English letter in regular type, a letter indicator is required only if the letter is in lowercase (see Example 17.9-1). If the letter is capitalized, the English letter indicator is omitted (see Example 17.9-3).

When a diagram does not contain technical content such as mathematical expressions or modified numbers, do not transcribe the labels in Nemeth Code even if the body of text before and/or after the diagram is in Nemeth Code. Terminate Nemeth Code before the graphic, and reestablish it at the beginning of the following text.

17.10 **Graphic Number Lines:** Symbols used in graphic number lines are required to be listed in a separate category on the Special Symbols page, listed in braille order. Suggested wording for the symbols is given in "Guidance for Transcription Using the Nemeth Code within UEB Contexts".

17.11 **Diagrams in Exercise Material:** If a diagram, number line, or other graphic is placed between instructions and the itemized exercise material which follows, apply the spacing and margin rules for the graphic as outlined in *Guidelines and Standards for Tactile Graphics*. Then continue Nemeth Code formatting for the exercise material.
**Instructions:** Leave blank space for tooling the lines.

**PRACTICE 17E**

Raj transformed quadrilateral PQRS to form quadrilateral P'Q'R'S'.

[Diagram of quadrilateral PQRS transformed to P'Q'R'S']
KEYING TECHNIQUE

17.12 Keying: When space does not permit the inclusion of labels, headings, entries, etc., in a figure, determinant, matrix, or table as shown in the print copy, one or more of the labels, headings, entries, etc., may be replaced by an alphabetic or numeric key. In addition to the keying guidelines outlined in Braille Formats, the following rules apply in Nemeth Code.

17.12.1 Alphabetic Key: An alphabetic key consists of two lowercase English letters, one of which contains a dot 3 or dot 6. Letter combinations that correspond to shortforms may not be used. The combination should be suggestive of the item it represents, if possible. Quoting Braille Formats, "Keys work best when they are related to the terms used in the text to help the reader remember what they are. Typically a letter key will be more memorable for the reader."

Two items which are identical should have the same key assigned to them. If any of the print entries in the table are made up of two lowercase letters, an alphabetic key cannot be used. In such cases, a numeric key is the only keying option.

17.12.2 Numeric Key: A numeric key consists of one or more numerals brailled in the upper part of the braille cell. This number is preceded by the numeric indicator and must not be punctuated. The key numbers are placed in the figure, determinant, matrix, or table in the same position as the material which they replace. Two items which are identical should have the same key assigned to them.

17.12.3 The Key List: A list of numeric and/or alphabetic keys and their meanings must be included in a transcriber's note. Numeric keys are listed in numeric order. Alphabetic keys are listed in alphabetical order. Refer to Braille Formats for guidelines regarding the transcriber's note, margins, placement on the page, etc.

An alphabetic key cannot be used in this first example because there are entries in the table consisting of two lowercase letters ("cm").

Example 17.12-1

<table>
<thead>
<tr>
<th></th>
<th>Town A</th>
<th>Town B</th>
<th>Town C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Temperature</td>
<td>25°C</td>
<td>-1°C</td>
<td>30°C</td>
</tr>
<tr>
<td>Lowest Temperature</td>
<td>13°C</td>
<td>-9°C</td>
<td>22°C</td>
</tr>
<tr>
<td>Precipitation (rain or snow)</td>
<td>0 cm</td>
<td>5 cm</td>
<td>2.5 cm</td>
</tr>
</tbody>
</table>
**KEY TO RK HIDES**

- WA WHITE TEMPERATURE
- WB WHITE TEMPERATURE
- WC PRECIPITATION DRIE OR SNOW

<table>
<thead>
<tr>
<th>COLUMN A</th>
<th>COLUMN B</th>
<th>COLUMN C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*By keying the row headings, the layout of the print table is maintained. Because there are entries in the table consisting of two lowercase letters ("cm"), a numeric key must be used.*
An alphabetic key will provide the reader with clues regarding their meaning.

Example 17.12-2

ADYLYN'S CHORE SPINNER

Adylyn hopes she will spin either "vacuum" or "weed garden" today. What is the probability that she will spin one of these chores?

- What is \( P(\text{vacuum}) \)?
- What is \( P(\text{weed garden}) \)?
- What is \( P(\text{vacuum}) \) OR \( P(\text{weed garden}) \)?
ADYLYN'S ORE SPIN...

KEY TO LABELS:

BR CLN AGROOM IM RISED WT LE
CM CLN MIRRORS
FL FOLD LAUNDRY
VR VACUUM IM RISING WT LE
WG WEG GARDEN

The key list is in alphabetical order. As outlined in Guidelines and Standards for Tactile Graphics, a blank line precedes and follows the graphic, and the keyed labels are placed outside of the circle. Displayed bulleted items follow guidelines given in Braille Formats. The probability notation "P(vacuum)", "P(weed garden)", and "OR" is mathematical – Nemeth Code switch indicators are used and words are not contracted.
Instructions: Key only the first and third column heading using an alphabetic key. Note: "dim" is a function abbreviation. Review function notation in Lesson 14.

PRACTICE 17F

<table>
<thead>
<tr>
<th>Eigenvalue</th>
<th>Eigenvectors</th>
<th>dim E(λ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 1</td>
<td>(a, b) ≠ (0, 0)</td>
<td>2</td>
</tr>
<tr>
<td>1, 1</td>
<td>t(1, 0), t ≠ 0</td>
<td>1</td>
</tr>
<tr>
<td>1, 1</td>
<td>t(0, 1), t ≠ 0</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>t(1, 1), t ≠ 0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>t(1, −1), t ≠ 0</td>
<td>1</td>
</tr>
</tbody>
</table>

CHALLENGE PROBLEM

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sums of Squares</th>
<th>D.F.</th>
<th>Mean Square</th>
<th>EMS</th>
<th>F-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between blocks</td>
<td>SSi = 2</td>
<td>2</td>
<td>2/2 = 1</td>
<td>σ² + (\frac{3}{2}) Σα_i²</td>
<td>(\frac{1}{2.5}) = .4</td>
</tr>
<tr>
<td>Between treatments</td>
<td>SSj = 26</td>
<td>2</td>
<td>26/2 = 13</td>
<td>σ² + (\frac{3}{2}) Σβ_j²</td>
<td>(\frac{18}{2.5}) = 5.2</td>
</tr>
<tr>
<td>Error</td>
<td>SS_{ij} = 10</td>
<td>4</td>
<td>10/4 = 2.5</td>
<td>σ²</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>SS = 38</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table is too wide to fit on a 40-cell-wide braille page. Although the column headings and entries could be keyed in order to maintain the same layout as shown in print, reading a table that is highly keyed is abstract and difficult to use. A solution is shown below. It combines the use of vertical division of the table, division of the long expressions in the EMS column, and keying two of the row headings.
The table is divided vertically into three sections. A single space dot is used to indicate blank space in a table. 

**Key to Block:**

- BK
- TR
- Error

<table>
<thead>
<tr>
<th>Block</th>
<th>Item</th>
<th>Sum</th>
<th>Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Block</th>
<th>Item</th>
<th>Sum</th>
<th>Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHEMISTRY

17.13 Two BANA Publications: Transcribing chemical notation requires further study and is beyond the scope of this lesson manual. The following publications offer rules and guidance:

- Braille Code for Chemical Notation 1997
- "Provisional Guidance for Chemistry Notation Using Nemeth in UEB Contexts" (2016)

REFERENCE SYMBOLS

The BANA Nemeth Code Technical Committee is discussing details regarding the transcription of reference symbols within mathematical context. This section will be completed after decisions are made.

For further practice, see Appendix A—Reading Practice.
TABLE #AG4A - #E values & it\n
\n
7/17/2018 17–25
The table label and column headings are transcribed in UEB. The row headings are part of the technical material and are uncontracted. The single-word switch indicator is not used.
Given exponent \( n \), compute its value \( y \) by completing these tables:

<table>
<thead>
<tr>
<th>( x )</th>
<th>( 2^x )</th>
<th>( y )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>729</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>65536</td>
</tr>
</tbody>
</table>

Formatting Notes: Subitem identifiers begin in cell 3. Column 1 begins in cell 1. Box lines use the full width of the page. Boxes are preceded and followed by a blank line. In column 3, the general omission indicator represents the question mark omission sign in Nemeth Code. The opening switch indicator precedes the identifier "a)." The closing switch indicator is placed at the end of the bottom box line, preceded by a space.
PRACTICE WAG'N

CRITE IO TABLE & COMBIES DATA F &
FREE TABLES LL.

<table>
<thead>
<tr>
<th>AGE</th>
<th>BLOOD PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>5'3''</td>
</tr>
<tr>
<td>26</td>
<td>5'9''</td>
</tr>
<tr>
<td>30</td>
<td>6'1''</td>
</tr>
<tr>
<td>34</td>
<td>5'10''</td>
</tr>
<tr>
<td>35</td>
<td>5'4''</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AGE</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>5'8''</td>
</tr>
<tr>
<td>26</td>
<td>5'10''</td>
</tr>
<tr>
<td>30</td>
<td>6'0''</td>
</tr>
<tr>
<td>34</td>
<td>5'11''</td>
</tr>
<tr>
<td>35</td>
<td>5'2''</td>
</tr>
</tbody>
</table>

.Formatting Notes: Although the text is “instructional”, it is formatted as a narrative paragraph (3-1) because it is not followed by itemized material.

First Table: The numbers can be transcribed in UEB. The second column heading will fit on one line, which is the preferred braille format.

Second Table: The presence of prime signs dictates Nemeth Code. The code switch indicator precedes the first data entry.
Nemeth Code is indicated because the entries contain decimal points. Since the data is composed entirely of numbers, numeric indicators are not used. The Nemeth Code terminator is placed alone on the line following the last entry, before the bottom box line.

The presence of prime symbols in the labels requires Nemeth Code. Nemeth Code is terminated after the required blank line following the graphic.
EXERCISE 17

Exercise 17 will be available when this course is finished being written and is no longer "Provisional".

Proceed to Lesson 18.