



# Teaching and Learning of the Nemeth Braille Code

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- Spatial Arrangement for Multiplication with Decimals
- Spatial Arrangement for Long Division
- Fraction and Fraction Indicators

# Multiplication with Decimals

(p.8)



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- A blank cell should be left in each partial product directly above the decimal point in the final product.
- To calculate the number of decimal places in the product, add the number of decimal places in each of the two numbers being multiplied.



# Example (p.8)

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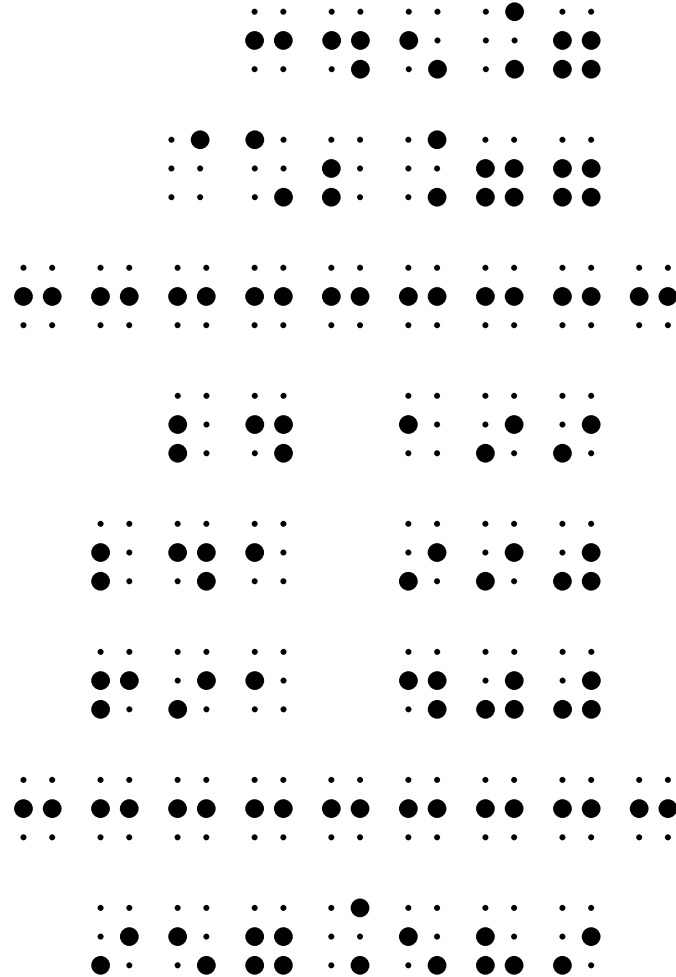
$$\begin{array}{r} 345.7 \\ \times 2.77 \\ \hline \end{array}$$

$$24\ 199$$

$$241\ 990$$

$$\begin{array}{r} 691\ 400 \\ \hline \end{array}$$

$$957.589$$



Braille representation of the multiplication problem and its solution. The numbers are arranged in columns corresponding to the digits in the text. The product is 957.589.



# Division

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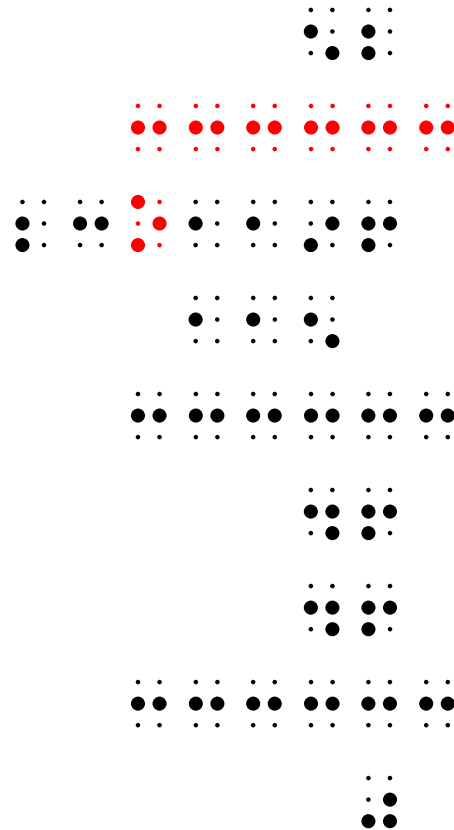
- Use dots 1-3-5 (letter o) to separate the divisor and the dividend.
- Use dots 3-5 again for your separation lines which should extend from above the division symbol to one cell to the right of the overall arrangement.
- The first digit of the quotient is aligned as it would be in print.
- No numeric indicator is used.



# Example

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$$\begin{array}{r} 52 \\ 23 \overline{) 1196} \\ \underline{115} \\ 46 \\ 46 \\ \underline{\quad} \\ 0 \end{array}$$





# Division with Decimals

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- When a decimal occurs in a dividend, leave a blank column of cells under the decimal point except at the separation line or repeat the decimal as you are bringing it down.

# Example 1

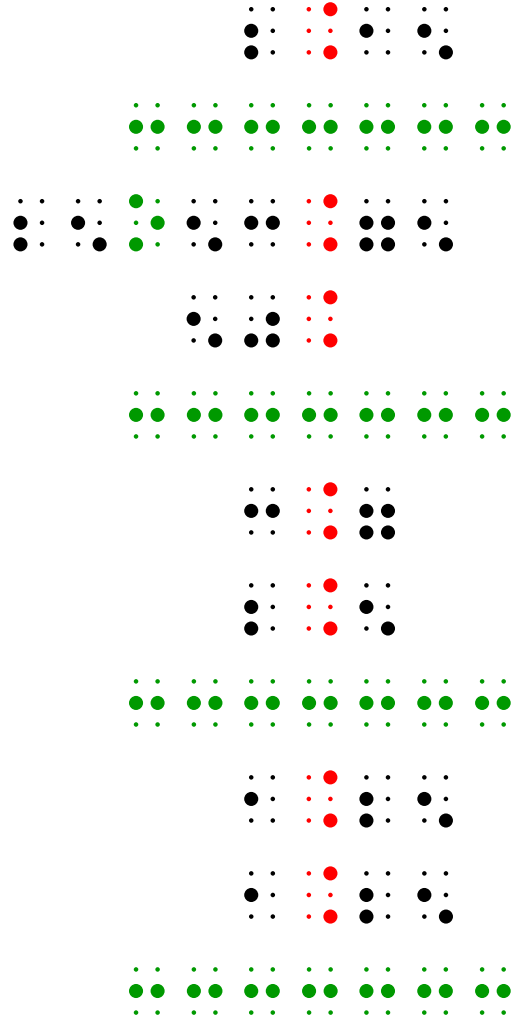
$$\begin{array}{r}
 2.15 \\
 \hline
 25 \overline{) 53.75} \\
 \underline{50} \\
 37 \\
 \underline{25} \\
 125 \\
 \underline{125} \\
 0
 \end{array}$$

Braille representation of the long division of 53.75 by 25. The calculation is shown in a columnar format with the following rows:

- Row 1: 25
- Row 2: 53.75
- Row 3: 50
- Row 4: 37
- Row 5: 25
- Row 6: 125
- Row 7: 125
- Row 8: 0

# Example 2

$$\begin{array}{r}
 2.15 \\
 25 \overline{) 53.75} \\
 \underline{50} \\
 37 \\
 \underline{25} \\
 125 \\
 \underline{125} \\
 0
 \end{array}$$





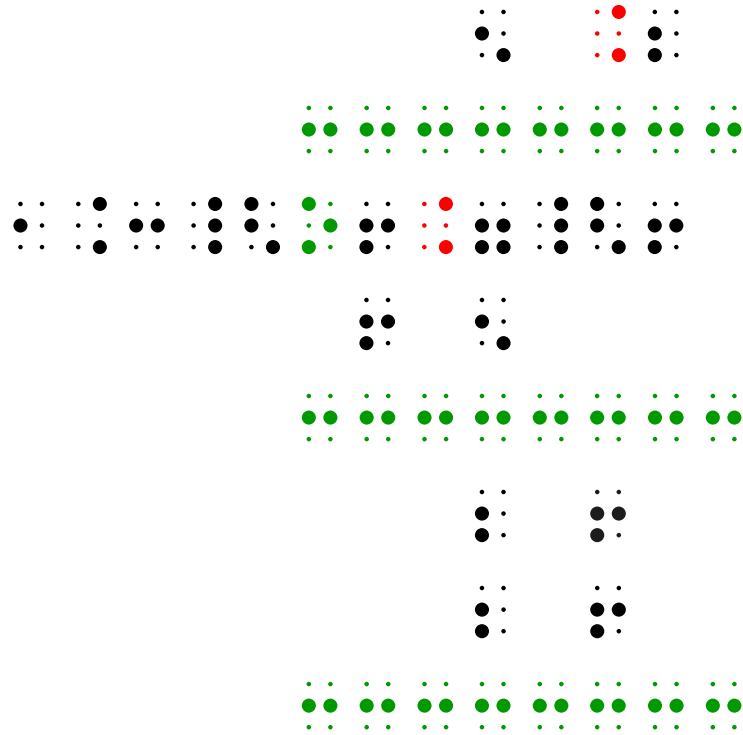
# Division w/ a Decimal in the Divisor

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- The caret is used to indicate the new position of decimal points.
- The print sign,  $\wedge$ , is represented by dots 4-5-6 followed by dots 1-2-6 ( $\therefore\therefore$ )

# Example

$$\begin{array}{r}
 1.3 \overline{) 6.7^6} \\
 \underline{6 \ 5} \\
 2 \ 6 \\
 \underline{2 \ 6} \\
 \phantom{0}
 \end{array}$$





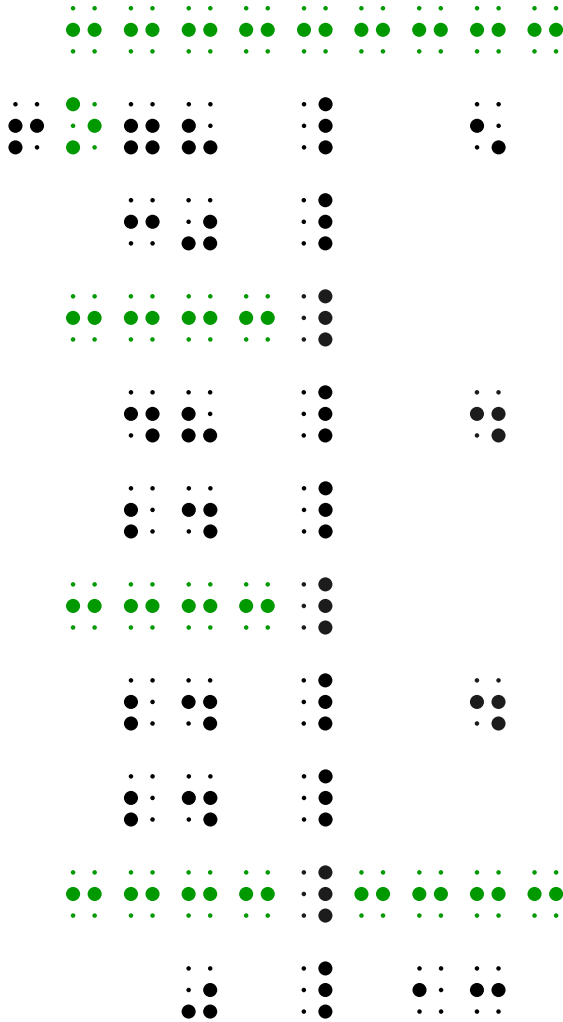
# Alternate Division

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- Prevents having to continually roll paper up and down.
- Called the T-method, 7-method, or Hangman method in the classroom.
- Parts of the quotient are written to the right side instead of above the dividend.
- Then they are added up when there is no more division that can be done.

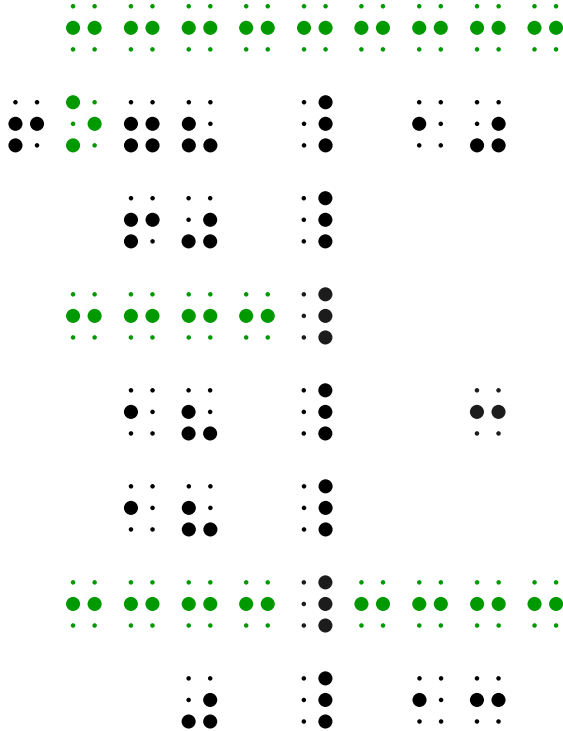
# Example 1

$$\begin{array}{r}
 6 \overline{)78} \quad 5 \\
 \underline{30} \\
 48 \quad 4 \\
 \underline{24} \\
 24 \quad 4 \\
 \underline{24} \\
 0 \quad 13
 \end{array}$$



# Example 2

$$\begin{array}{r}
 6 \overline{)78} \quad 10 \\
 \underline{60} \\
 18 \quad 3 \\
 \underline{18} \\
 0 \quad 13
 \end{array}$$





# Division with Remainders

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- Type r followed by a dot 5 before the remainder.
- Extend the separation lines to one cell past the end of the remainder.

# Example

$$25 \overline{) 4529} \quad r4$$

$$\underline{25}$$

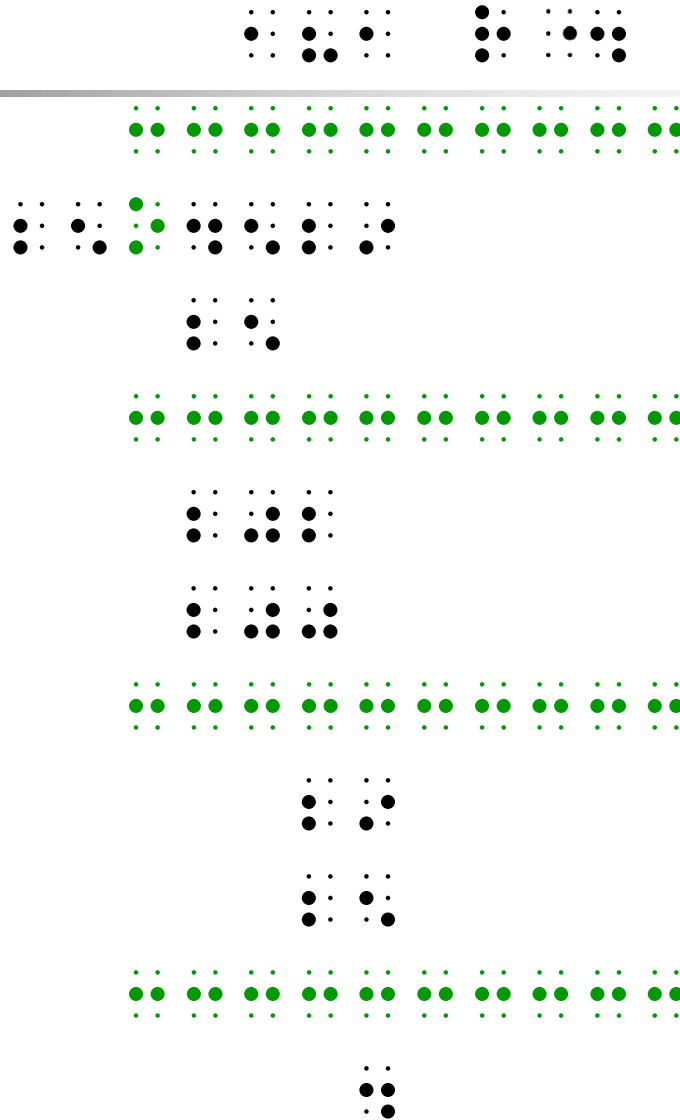
$$202$$

$$\underline{200}$$

$$29$$

$$\underline{25}$$

$$4$$



# Fractions and Fraction Indicators

- Simple Fractions w/ the horizontal line
  - ⠠⠨⠠⠨⠠⠨ (th st NI) (this still NI)
- Simple Fractions w/ the slanted line
  - ⠠⠨⠠⠨⠠⠨
- Mixed Numbers w/ the horizontal line
  - ⠠⠨⠠⠨⠠⠨⠠⠨⠠⠨
- Mixed Numbers w/ the slanted line
  - ⠠⠨⠠⠨⠠⠨⠠⠨





# Examples

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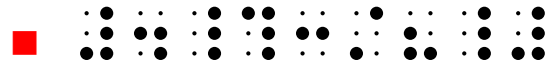
- Simple Fractions w/ the horizontal line

-   $\frac{1}{3}$

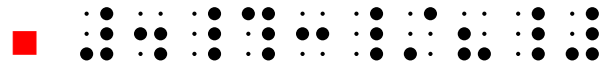
- Simple Fractions w/ the slanted line

-   $\frac{1}{3}$

- Mixed Numbers w/ the horizontal line

-   $4\frac{3}{8}$

- Mixed Numbers w/ the slanted line

-   $4\frac{3}{8}$



# Assignment

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- Correct first assignment as noted in e-mail from me
- p.9, 10 pick 1 on each page plus multiplying check
- p.11 pick 1
- Make up a long division problem and then solve using the alternate division arrangement (Use at least a 4 digit dividend) Like on p. 12
- Make up a long division problem that would have a remainder and solve using either method. (Use at least a 4 digit dividend) Like on p. 12
- p.16 all