Linear Equations with a Multiplication Cross, Grouping Symbols, and/or Exponents

Background

After you completed the *1. Linear Equations with a Multiplication Cross* focused lesson, you could write a linear equation with a multiplication cross in Nemeth Code. In this lesson, you will learn how to read and write linear equations that include a multiplication cross as well as a grouping symbol and/or exponent.

Basic Rules for Reading and Writing Equations with Grouping Symbols

In this lesson, we will learn how to read and write a linear equation with a multiplication cross and **grouping symbols**. Although there are additional comparison symbols and grouping symbols, we will use the following Nemeth symbols:

⠤⠔ (dot 4, followed by dots 1-6) multiplication cross (×)

⠶⠒ (dots 4-6, followed by dots 1-3) equals sign (=)

⠷ (dots 1-2-3-5-6) open parenthesis

⠾ (dots 2-3-4-5-6) close parenthesis

⠤⠷ (dot 4, followed by dots 1-2-3-5-6) open bracket $([)$

⠤⠾ (dot 4, followed by dots 2-3-4-5-6) close bracket $(])$

So to write open parenthesis four times three close parenthesis minus seven equals in Nemeth Code, you would write:

$$(4 \times 3) - 7 =$$

⠷⠲⠤⠔⠲⠼⠉⠾⠤⠼⠛⠀⠶⠒⠀⠾ or open parenthesis, four, multiplication cross, three, close parenthesis, minus, seven, space, equals sign, space, general omission symbol

Since nothing is written after the equals sign, a general omission symbol is needed.

Notice that there is not a space before or after the multiplication cross. In addition, since a multiplication cross was used in print, a multiplication cross was used in braille.

Examples

1. $6 + (6 - 2) \times 3 = ?$

   Six plus open parenthesis six minus two close parenthesis times three equals what number?

2. $(7 \times 10) + (4 \times 1) =$ ____

   Open parenthesis seven times ten close parenthesis plus open parenthesis four times one close parenthesis equals blank.

3. $2 \times [5 + (14 - 8 + 3)] =$

   Two times open bracket five plus open parenthesis fourteen minus eight plus three close parenthesis close bracket equals?

Activity time: See if you can re-create the equations with a multiplication cross and grouping symbols in examples 1 to 3.

Basic Rules for Reading and Writing Equations with Exponents

Linear equations with the multiplication cross and **exponents** use the following Nemeth symbols:

 (dot 4, followed by dots 1-6) multiplication cross (×)

 (dots 4-6, followed by dots 1-3) equals sign (=)

 (dots 4-5) superscript indicator

 (dot 5) baseline indicator

The next equation includes a **superscript**, sometimes called an exponent or power. So to write the equation seventy times ten squared equals blank, you would write:

$70 \times 10^2 =$ ____

 or seventy, multiplication cross, ten, superscript indicator, two, space, equals sign, space, long dash

Since a space came after the exponent, no baseline indicator was needed.

Examples

4. $10^2 \times 10^3 = ?$ Ten squared times ten cubed equals what number?

A baseline indicator was used after the first superscript (squared) to indicate that the following symbol, the multiplication cross, is on the baseline and not elevated.

5. $4.1 \times 10^{-3} =$ _____

   Four point one times ten to the negative third power equals blank.

6. $2^4 \times 5 =$

   Two to the fourth power times five equals?

Again, a baseline indicator was used after the superscript to indicate that the following symbol, the multiplication cross, is on the baseline and not elevated.

Activity time: See if you can re-create the equations with a multiplication cross and exponents in examples 4 to 6.