Multiplication and Division Lesson 2
Multiplication Cross and Fractions

Important Note

For all braille examples, emboss the "L2-Mul-Div-Problems-Only.brf" file as a supplement to this lesson.

Background

After you completed "Lesson 1 Multiplication Cross," you could write equations in a linear format with a multiplication cross and whole numbers in Nemeth Code.

Basic Rules

In this lesson, we will learn how to read and write equations in a linear format with a **multiplication cross** and **fractions**. Equations with a multiplication cross and one or more fractions use the following Nemeth Code symbols:

- Multiplication cross (dot 4, dots 1-6) (×)
- Equals sign (dots 4-6, dots 1-3) (=)
- General omission symbol (dots 1-2-3-4-5-6)
- Long dash (dots 3-6, dots 3-6, dots 3-6, dots 3-6) (_____)
- Opening simple fraction indicator (dots 1-4-5-6)
- Horizontal fraction line (dots 3-4)
- Closing simple fraction indicator (dots 3-4-5-6)

The following steps outline how to write the equation two times three-fourths equals blank:

1. Numeric indicator (dots 3-4-5-6)
2. Two (dots 2-3)
3. Multiplication cross (dot 1, dots 1-6)
4. Opening simple fraction indicator (dots 1-4-5-6)
5. Three (dots 2-5)

6. Horizontal fraction line (dots 3-4) ⠲

7. Four (dots 2-5-6) ⠲

8. Closing simple fraction indicator (dots 3-4-5-6) ⠼

9. Space

10. Equals sign (dots 4-6, dots 1-3) ⠨⠅

11. Space

12. Long dash (dots 3-6, dots 3-6, dots 3-6, dots 3-6) ⠤⠤⠤⠤

$$2 \times \frac{3}{4} = \underline{\quad}$$

Notice the equation began with a numeric indicator. It was used at the beginning of the equation since the equation began with a whole number. Also notice that there is no space before or after the multiplication cross.

We can have more than one fraction in an equation with a multiplication cross. Now let's write one-half times (multiplication cross) one-fifth equals question mark, representing a missing number.

$$\frac{1}{2} \times \frac{1}{5} = ?$$

The following steps outline how to write this equation in Nemeth Code:

opening simple fraction indicator, one, horizontal fraction line, two, closing simple fraction indicator, multiplication cross, opening simple fraction indicator, one, horizontal fraction line, five, closing simple fraction indicator, space, equals sign, space, general omission symbol

Examples

1. Two-thirds times one equals blank.

$$\frac{2}{3} \times 1 = \underline{\quad}$$

2. One-third times one-third equals what number?

$$\frac{1}{3} \times \frac{1}{3} = ?$$

⠦⠤ ⠤⠿ ⠦⠹⠂⠋⠳⠼⠹⠂⠋⠳⠼ ⠄⠤ ⠿

3. Five-halves times three-fourths equals blank.

$$\frac{5}{2} \times \frac{3}{4} = \underline{\hspace{1cm}}$$

⠦⠿ ⠤⠿ ⠦⠹⠢⠋⠆⠼⠹⠒⠋⠲⠼ ⠄⠤ ⠤⠤⠤⠤

4. What number times one-half equals six?

$$? \times \frac{1}{2} = 6$$

⠦⠿ ⠤⠿ ⠿⠹⠂⠋⠆⠼ ⠄⠤ ⠒⠖

Activity Time

Write the equations with a multiplication cross and fractions using the horizontal fraction line from Examples 1 to 4.

1. Two-thirds times one equals blank.
2. One-third times one-third equals what number?
3. Five-halves times three-fourths equals blank.
4. What number times one-half equals six?