

# Multiplication and Division Lesson 4

## Multiplication Dot

### Important Note

For all braille examples, emboss the "L4-Mul-Div-Problems-Only.brf" file as a supplement to this lesson.

### Background

After you completed Multiplication and Division Lessons 1 – 3, you could write equations in a linear format with a multiplication cross with whole numbers, fractions, grouping symbols, and exponents in Nemeth Code. However, there are actually two different ways the multiplication sign can be written in print, and therefore there are two different ways to write it in Nemeth Code. In this lesson, you will learn how to write equations in a linear format that contain the multiplication dot.

### Basic Rules

The multiplication cross and **multiplication dot** are very similar in Nemeth Code. Although there are additional symbols that we have learned, we will use the following Nemeth symbols in this lesson:

- Multiplication dot (dots 1-6) ( $\cdot$ )    ⠠⠨
- 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)    ⠠⠨
- Open parenthesis (dots 1-2-3-5-6)    ⠠⠨
- Close parenthesis (dots 2-3-4-5-6)    ⠠⠨

The following steps outline how to write the equation two times (with a multiplication dot) three equals six in Nemeth Code:

1. Numeric indicator (dots 3-4-5-6) ⠠⠠⠠⠠
2. Two (dots 2-3) ⠠⠠
3. Multiplication dot (dots 1-6) ⠠⠠⠠⠠⠠⠠
4. Three (dots 2-5) ⠠⠠⠠
5. Space
6. Equals sign (dots 4-6, dots 1-3) ⠠⠠⠠⠠⠠⠠
7. Space
8. Numeric indicator (dots 3-4-5-6) ⠠⠠⠠⠠
9. Six (dots 2-3-5) ⠠⠠⠠

$$2 \cdot 3 = 6$$

Notice that there is no space before or after the multiplication dot.

## Examples

1. Four times five equals what number?

$$4 \cdot 5 = ?$$

2. Six times seven equals forty-two.

$$6 \cdot 7 = 42$$

3. Two-fifths times one-fourth equals blank.

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

The figure consists of 10 small 5x5 grids arranged in a single row, each showing a different configuration of black dots. The dots are arranged in a pattern that grows from left to right across the sequence. The first grid has 4 dots, and the tenth grid has 16 dots. The pattern of dots is as follows:

Step	Row 1	Row 2	Row 3	Row 4	Row 5
1	•	•	•	•	
2	•	•	•	•	
3	•	•	•	•	
4	•	•	•	•	
5	•	•	•	•	
6	•	•	•	•	
7	•	•	•	•	
8	•	•	•	•	
9	•	•	•	•	
10	•	•	•	•	

4. Open parenthesis six times three close parenthesis plus five equals blank.

$$(6 \cdot 3) + 5 = \underline{\hspace{2cm}}$$

## Activity Time

Write the equations with a multiplication dot from Examples 1 to 4.

1. Four times five equals what number?
2. Six times seven equals forty-two.
3. Two-fifths times one-fourth equals blank.
4. Open parenthesis six times three close parenthesis plus five equals blank.