

Nemeth Code Symbols Used in the Middle Grades and Strategies for Supporting Math Learning

Lesson 1: Nemeth Code Symbols Used in the Middle Grades, Part 1



Objectives

Participants will be able to:

1. Read and write problems containing variables.
2. Read and write problems containing grouping symbols, including parentheses, brackets, and braces.
3. Read and write problems containing negative numbers.
4. Read and write ordered pairs.
5. Read and write math word problems that require use of the opening Nemeth Code indicator and Nemeth Code terminator.

Variables

- A variable is a letter that represents an unknown number. (e.g., $6 + c = 12$).
- Do not use an English letter indicator with a variable that is in a math expression.
- When variables are italicized in print, ignore the italics.

$$4 + x = 26$$



$$2.5 + m = 5.0$$



$$t - 9 = 30$$



Grouping Symbols: Parentheses

- ⠠ opening (left) parenthesis (
- ⠨ closing (right) parenthesis)
- Do not use a numeric indicator when a single number is enclosed in a grouping symbol.
- Do not use the English letter indicator when a single letter is in a grouping symbol.

(a) (B) (2) (91) 3)

⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠

Examples with Parentheses

$$2(y - 3) = 16$$



$$8 + (z - r) < 21$$



$$6(x \div 3) = 12$$



$$(5 - a) + 2 > 15$$



Activity 1A

Braille the following problems.

(a) $2(t \div 6) = 6$

(b) $x - z > 88$

(c) $3(y + 2) = 48$

(d) $(10 - a) + 2 = 4$

(e) $23 + y < 15$

(f) $3 - m = n + 2$

Activity 1A: Answer Key

(a) $2(t \div 6) = 6$



(b) $x - z > 88$



(c) $3(y + 2) = 48$



(d) $(10 - a) + 2 = 4$




(e) $23 + y < 15$



(f) $3 - m = n + 2$



Grouping Symbols: Brackets and Braces

 opening (left) bracket [

 closing (right) bracket]

 opening (left) brace {

 closing (right) brace }

$$6 \times [(n + 2) - 3] = 12$$



          

$$5 + \{ [3(8 - 4)] \} + 9 = ?$$


              

Ordered Pair

- An ordered pair is a set of numbers used for plotting points on a coordinate plane.
- Coordinate pairs are written inside parentheses, and are separated by a mathematical comma and space.

$(2, 9)$  $(-3, 4)$ 

$(-2, -6)$  $(1, -5)$ 



$(0, 0)$ 

Activity 1B

Interline the following.


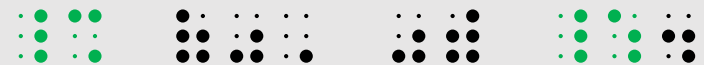
Braille patterns for the sentence "The cat sat on the mat." arranged in four rows for interlining. Row 1: The (two cells), cat (two cells), sat (two cells), on (two cells), the (two cells), mat (two cells). Row 2: The (two cells), cat (two cells), sat (two cells), on (two cells), the (two cells), mat (two cells), a (one cell), t (one cell), the (two cells), mat (two cells). Row 3: The (two cells), cat (two cells), sat (two cells), on (two cells), the (two cells), mat (two cells). Row 4: The (two cells), cat (two cells), sat (two cells), on (two cells), the (two cells), mat (two cells), a (one cell), t (one cell), the (two cells), mat (two cells), a (one cell), t (one cell), the (two cells), mat (two cells).

Word Problems

-  Opening Nemeth Code indicator
 -  Nemeth Code terminator
- } Switch
Indicators

- Use Nemeth Code switch indicators in word problems containing ordered pairs and negative numbers.
- Keep all mathematical content on the same line whenever possible.

The coordinates for the origin are (0,0).

Which number is greater: -6, -2, -8?



Activity 1C

Braille the following problems.

1) $2 \times [(y - 5) + 3] = 40$

2) $7 - \{[2(6 - 4)]\} - 3 = \underline{\hspace{2cm}}$

3) $-13 + 7 = -6$

4) $-3c + 2 = -28$

5) $(-1, -4)$

6) Plot the following point: $(-9, 6)$.

Activity 1C: Answer Key

12

13 14 15 16 17 18 19 20 21 22 23 24 25

26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

51 52 53 54 55 56 57 58 59 60

61 62 63 64 65 66 67 68 69 70 71 72 73 74 75

76 77 78 79 80 81 82 83 84 85

86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108