

# 5 PARTS OF MATHEMATICAL SPEECH

1. Number Symbols  
“things”  
(nouns)  $\{1, 2, 3, \frac{4}{5}, .9, \dots\}$
2. Operation Symbols  
“actions”  
(verbs)  $\{+, -, \times, \div, \dots\}$
3. Relation Symbols  
“comparisons”  $\{=, >, <, \dots\}$
4. Grouping Symbols  
“associations”  
(punctuation)  $\{( ), [ ], \{ \}, \dots\}$
5. Placeholder Symbols  
“hold the place”  
(pronouns)  $\{a, b, c, ?, \square, \dots\}$

# TYPES OF MATHEMATICAL EXPRESSIONS

1. Closed Phrase

*Ex.*  $7 + 9$

no relation  
no placeholder

So, Evaluate

*Ex.* 16

2. Open Phrase

*Ex.*  $7 + n$

no relation  
has placeholder

So, Substitute and Evaluate

*Ex.*  $\begin{cases} \text{Domain} = \{0, 1, 2\} \\ \text{Range} = \{7, 8, 9\} \end{cases}$

3. Closed Sentence

*Ex.*  $7 + 9 = 17$

has relation  
no placeholder

So, True or False

*Ex.* False

4. Open Sentence

*Ex.*  $7 + n = 17$

has relation  
has placeholder

So, Substitute and  
True or False

*Ex.*  $\begin{cases} \text{Replacement} = \{4, 5, 6\} \\ \text{Solution} = \{ \} \end{cases}$

# TRANSLATION OF MATH SYMBOLS

1. Number Symbols  $\{1, 2, 3, \frac{4}{5}, .9, \dots\}$

3 → three

2. Operation Symbols  $\{+, -, \times, \div, \dots\}$

+	add	rise	increase
	sum	climb	combine
	plus	total	number more than
	gain		

-	subtract	loss	take away
	difference	fall	deduct
	minus	decrease	number less than

x or ·	times	of	twice
	multiply	double	
	product	triple	

÷	divide	goes into
	quotient	fraction

3. Relation Symbols  $\{=, >, <, \dots\}$

=	is equal to, is the same as
>	is greater than, is more than
<	is less than, is smaller than

# TRANSLATION OF MATH SYMBOLS

4. Grouping Symbols  $\{( ), [ ], \{ }, \dots\}$

( ) parentheses

[ ] brackets

{ } braces

the quantity

“sum”

“difference”

“product”

“quotient”

5. Placeholder Symbols  $\{a, b, c, \dots, ?, \dots, \square, \dots\}$

a “number”

the “unknown”

the “age”

the “distance”

the “weight”

⋮

# TRANSLATION OF MATH SYMBOLS

The sum of a number and 7 is equal to 20.

$$n + 7 = 20$$

4 is 1 less than the quotient of a number and 9.

$$4 = \frac{n}{9} - 1$$

39 is greater than the result of multiplying the sum of 6 and some number by 3.

$$39 > (6 + n) \cdot 3$$