

# EXTRA PRACTICE - Exercises

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## Unit I – The Structure of Mathematics Part A – Mathematics as a Language Lesson 1 – Mathematical Parts of Speech

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Tell what part of mathematical speech each of the following is, and state in words what it means.

1. 3.14159... \_\_\_\_\_
2.  $\cap$  (generally called a “cap”) \_\_\_\_\_
3.  $||$  as in the expression  $|-7|$  \_\_\_\_\_
4.  $3.2 \cdot 10^{-6}$  \_\_\_\_\_
5. Parentheses as in the expression  $(4)(7)$  \_\_\_\_\_
6.  $\emptyset$  \_\_\_\_\_
7. The bar in the expression  $\frac{8+14}{2}$  \_\_\_\_\_
8. \_\_\_\_\_
9. % \_\_\_\_\_
10. The 3 in the expression  $5^3$  \_\_\_\_\_
11. The bar in  $\overline{.374}$  \_\_\_\_\_
12. The  $\sqrt{\quad}$  in the expression  $\sqrt[4]{81}$  \_\_\_\_\_
13. The letter “i” as in  $5i$  \_\_\_\_\_
14. ! \_\_\_\_\_
15.  $|||||$  \_\_\_\_\_
16.  $()$  as in  $f() = 4() - 3$  \_\_\_\_\_
17.  $\cup$  (generally called a “cup”) \_\_\_\_\_
18.  $mn$  \_\_\_\_\_
19. IV \_\_\_\_\_
20. The dots in  $2,4,6,8,\dots$  \_\_\_\_\_

Other Symbols:  $\doteq$  as in  $\pi \doteq \frac{22}{7}$  \_\_\_\_\_  
as in  $e \{a,e,i,o,u\}$  \_\_\_\_\_

# EXTRA PRACTICE — Answer Key

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Tell what part of mathematical speech each of the following is, and state in words what it means.

1. Number Symbol - Numerical Value for  $\pi$  (pi).
2. Operation Symbol - Indicates a gathering of common elements in two sets into one set.
3. Number Symbol - Indicates value of a signed number without regard to direction. (*absolute value*)
4. Number Symbol - 0.0000032
5. Grouping Symbols - Written next to each other, the groups will be multiplied
6. Number Symbol - Indicates a set with no members
7. Grouping Symbol - Groups numerator elements, groups denominator elements  
(*generally involves division*)
8. Relation Symbol - Indicates that a given set is a subset of (or is contained in) a second set.
9. Number Symbol - Indicates the ratio of a given number to 100
10. Number Symbol - Indicates how many of the base 5 to use as a factor. i.e.,  $5^3 = 5 \cdot 5 \cdot 5$
11. Number Symbol - Indicates that a given block of digits repeats
12. Number Symbol - Indicates a root of a number
13. Number Symbol -  $i$  is the designation for  $\sqrt{-1}$
14. Number Symbol - For example the quantity  $5!$  indicates  $5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$
15. Number Symbol - Represents signed numbers; called a vector. In this case,  $+7$ .
16. Grouping Symbol - In this case we are finding the functional value of whatever is in the grouping symbols.
17. Operation Symbol - Indicates a combining of sets
18. Number Symbol - Indicates the result of multiplying  $m$  and  $n$
19. Number Symbol - Roman numeral for 4
20. Number Symbol - Indicates pattern goes on forever; called an ellipsis.