**Lesson 5 Guided Notes**

*Order of Operations*

When there is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ addition or subtraction step within a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, we take the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in order from \_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

***Example: In this problem we first subtract 4 from 9. Then we add 3.***

 9 – 4 + 3 = 8

If a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is desired, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are used to show which step is taken \_\_\_\_\_\_\_\_\_\_\_\_.

***Example: In the problem below, we first add 4 and 3 to get 7. Then we subtract 7 from 9.***

 9 – (4 + 3) = 2

These two rules are part of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in mathematics.

***Order of operations:***





Work out the following examples:

***Important note: If there are no parentheses. Solve from left to right.***

16 – 3 + 4 =

***Important note: If there are parenthesis. Solve parentheses first.***

16 – (3 + 4) =

When there is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ one multiplication or division step within a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , we take the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

***Example: In this problem we divide 24 by 6 and then multiply by 2.***

 24 ![C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png]() 6 x 2 = 8

If there are\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , then we\_\_\_\_\_\_\_\_\_\_\_\_ do the \_\_\_\_\_\_\_\_\_\_ within the parentheses.

***Example: In this problem we first multiply 6 by 2 and get 12.Then we divide 24 by 12.***

 24 ![C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png]() (6 x 2) = 2



Solve b: 18 ![C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png]() (6 ![C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png]() 3) =

Did you get the same answer as a? If no, why not?

Work out the following examples:

***Important note: If there are no parentheses. Solve from left to right.***

144 ![C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png]() 8 x 6 =

***Important note: If there are parenthesis. Solve parentheses first.***

144 ![C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png]() (8 x 6) =

Only \_\_\_\_\_ numbers are involved in \_\_\_\_\_ \_\_\_\_\_\_\_ of a \_\_\_\_\_\_\_\_\_. If \_\_\_\_ numbers are added (or multiplied) changing the two numbers selected for the first addition (or first multiplication) \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_ the final sum (or product).

***Example:***

 (2 + 3) + 4 = 2 + (3 + 4) (2 x 3) x 4 = 2 x (3 x 4)

This property applies to \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ and is called the \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_.

As shown by examples 1and 2, the Associative Property \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ apply to subtraction or to division.

***Associative Property of Addition:***

When\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_ of the numbers that are \_\_\_\_\_\_\_\_\_\_\_, the \_\_\_\_\_\_\_\_\_\_\_ will always be the \_\_\_\_\_\_.

Note: It does not apply to subtraction

***Write down an example:***

***Associative Property of Multiplication:***

When \_\_\_\_\_\_\_\_\_\_the \_\_\_\_\_\_\_\_\_\_\_of the numbers that are \_\_\_\_\_\_\_\_, the \_\_\_\_\_\_\_\_\_\_\_ will always be the \_\_\_\_\_\_\_\_\_\_\_\_\_.

Note: It does not apply to division

***Write down an example:***



***Practice Problems***

|  |  |
| --- | --- |
| 1. 16 – 3+ 4 =
 | 1. 16 – (3 + 4) =
 |
| 1. 24C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png (4 x 3) =
 | 1. 24C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png 4 x 3 =
 |
| 1. 24C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png 6 C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png 2 =
 | 1. 24C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png (6 C:\Users\choward\AppData\Local\Microsoft\Windows\INetCache\IE\1DTX8MLN\512px-Emojione_2797.svg[1].png 2) =
 |
| 1. 6 + 9 =

 3 | 1. 12 + 8 =

12 - 8 |
| 1. Rewrite problem g using parentheses instead of a bar.
 |  |