Today's Learning Target:

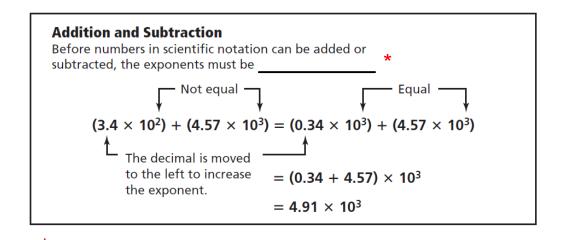# 7-2B Operations with Scientific Notation

* I CAN perform operations (+ - × ÷) of numbers in scientific notation.

Addition and Subtraction

Before numbers in scientific notation can be added or subtracted, the exponents must be _____ *

Not equal   Equal

$(3.4 \times 10^2) + (4.57 \times 10^3) = (0.34 \times 10^3) + (4.57 \times 10^3)$

The decimal is moved to the left to increase the exponent.

$= (0.34 + 4.57) \times 10^3$

$= 4.91 \times 10^3$

*
_____

_____

_____

When adjusting decimals

moving decimal	moving decimal
exponents	exponents

$$0.23 \times 10^4 \qquad\qquad 9300 \times 10^{-8}$$

$$2.3 \times 10^{\square} \qquad\qquad 9.3 \times 10^{\square}$$

Multiplication

When numbers in scientific notation are multiplied, only the number is multiplied. The exponents are added.

$$(2.00 \times 10^3)(4.00 \times 10^4) = (2.00)(4.00) \times 10^{3+4}$$

$$= 8.00 \times 10^7$$

Division

When numbers in scientific notation are divided, only the number is divided. The exponents are subtracted.

$$\frac{9.60 \times 10^7}{1.60 \times 10^4} = \frac{9.60}{1.60} \times 10^{7-4}$$

$$= 6.00 \times 10^3$$