Go to one of the whiteboards around the room with your table group and solve the problem.

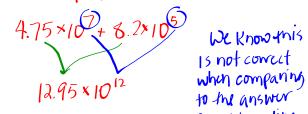
Regular whiteboard rules apply.

No calculators needed.

$4.75 \times 10^7 + 8.2 \times 10^5$

Expand and Add

What if we don't expand?



to the answer from expanding

Try Again:

$$4.75 \times 10^{7} + 8.2 \times 10^{5+2}$$
 Let's get the exponents the $4.75 \times 10^{7} + 0.082 \times 10^{7}$ same 4.832×10^{7}

$$475 \times 10^{5} + 8.2 \times 10^{5}$$
 463.2×10^{5}
 $5 \times 10^{7} \times 10^{7} \times 10^{7}$

Do we prefer using the larger or smaller exponent?

Scientific Notation Review

Proper Form:

What if?
$$34 \times 10^4$$

$$2.4 \times 10^3$$
 or 2.4×10^5

Scientific Notation

$$0.004 = 4.0 \times 10^{-3}$$

$$0.0000721 = 7.2| \times 10^{-5}$$

$$567 \times 10^4 = 5.67 \times 10^6$$

Write in Standard Form

$$2.73 \times 10^{4} = 2.7300$$
 = $27,300$

nead to add 4 place values

 $4 \times 10^{6} = 4,000,000$

$$Q_2 \times 10^{-2} = 0.002 \approx 0.02$$
 ???

$$4.32 \times 10^{-4} = 0.000432$$

Operations with Scientific Notation

$$4.2 \times 10^{2-1} | \times 10^{1} =$$

$$42 \times 10^{1} + | \times 10^{1} = 43 \times$$

$$3.5 \times 10^{7} + 1.3 \times 10^{7} = 3.8 \times 10^{7}$$

$$(2.5 + 1.3) \times 10^{7}$$

$$6 \times 10^{7} + 7 \times 10^{7} = 13 \times 10^{7} = 1.3 \times 10^{8}$$

$$2 \times 10^{6} + 5 \times 10^{5} =$$

Operations with Scientific Notation - Practice

Addition and Subtraction

Before numbers in scientific notation can be added or subtracted, the exponents must be equal.

Not equal
$$\longrightarrow$$
 Equal \longrightarrow Equal \longrightarrow (3.4 × 10²) + (4.57 × 10³) = (0.34 × 10³) + (4.57 × 10³)

The decimal is moved to the left to increase the exponent. = (0.34 + 4.57) × 10³

= 4.91 × 10³

1.
$$(9.19 \times 10^3) + (2.3 \times 10^4)$$

2.
$$(5 \times 10^4) - (4 \times 10^2)$$

3.
$$(6.75 \times 10^4) - (2 \times 10^1)$$

4.
$$(1.2 \times 10^{-3}) + (8.9 \times 10^{-3})$$

5.
$$(9.99 \times 10^{-2}) - (1.2 \times 10^{-3})$$

6.
$$(4.3 \times 10^7) - (7.5 \times 10^5)$$

7.
$$(2.345 \times 10^2) + (1.31 \times 10^0)$$

8.
$$(7.5 \times 10^{-2}) - (2 \times 10^{-4})$$

Addition and Subtraction With Scientific Notation

Date Period

Simplify. Write each answer in scientific notation.

1)
$$3.1 \times 10^3 + 4.3 \times 10^3$$

2)
$$3 \times 10^{1} + 6.4 \times 10^{2}$$

3)
$$2.4 \times 10^4 + 5.57 \times 10^3$$

4)
$$5 \times 10^{-2} + 1.6 \times 10^{-3}$$

5)
$$2.5 \times 10^{1} + 6.14 \times 10^{4}$$

6)
$$7 \times 10^{-1} + 6.4 \times 10^{-5}$$

7)
$$5 \times 10^{-3} + 3.3 \times 10^{-6}$$

8)
$$8 \times 10^{-1} + 6.9 \times 10^{3}$$

9) $1.39 \times 10^5 - 4 \times 10^2$

10)
$$2.74 \times 10^{-1} - 6.53 \times 10^{-4}$$

11)
$$8.14 \times 10^5 - 7.8 \times 10^2$$

12)
$$6.36 \times 10^3 - 5.8 \times 10^{-1}$$

13)
$$5.1 \times 10^{-1} + 0.38 \times 10^{4}$$

14)
$$5.9 \times 10^{-2} - 0.078 \times 10^{3}$$

Homework

Finish classwork