REVIEW
Scientific notation

Scientific Notation is a format in which a number is expressed as a number between 1 and 10 multiplied by a power of 10.

EX 1:

Put each of these in scientific notation.

a) 3052

b) 0.08923

c) 0.000032

d) 1948.35

EX 2:

Write in decimal notation.

a) 5.7×10^{-3}

b) 7.55×10^{6}

c) 8×10^{2}

d) 0.3×10^{-4}

Multiply/Divide with scientific notation

Multiply or divide the number and deal with the powers of ten separately.

EX 3:

Multiply or divide these.

a) $(4 \times 10^{7}) \cdot (3.5 \times 10^{-2})$

b) $(3.2 \times 10^{5}) \div (2.1 \times 10^{-2})$

Add/Subtract

If powers match, add the numbers and keep the powers of ten.

If powers do not match, add or subtract in decimal notation.

EX 4:

Add or subtract these.

a) $(2.3 \times 10^{-22}) - (1.5 \times 10^{-22})$

b) $(3 \times 10^{6}) + (5 \times 10^{4})$

Scientific Notation

Advantages

- easy to write large or small numbers (w/ less space)
- convenient when multiplying or dividing

Disadvantages

- easy to lose track of meaning/size of number
- hard to use for adding or subtracting (if powers are different)

EX 5:

Use scientific notation for this computation. In the year 2006, the population of the U.S. hit 300 million. The national debt was $8.6 trillion. What was the national debt per person that year?