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) $5.7 \times 10^{-3}$  
   b) $7.55 \times 10^6$

   c) $8 \times 10^2$  
   d) $0.3 \times 10^{-4}$
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

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>- easy to write large or small numbers (w/ less space)</td>
<td>- easy to lose track of meaning/size of number</td>
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<tr>
<td>- convenient when multiplying or dividing</td>
<td>- hard to use for adding or subtracting (if powers are different)</td>
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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?