

Name: ANSWERS

Date: _____

Period: _____

* Remember: small #'s (<1) get negative exponents
 large #'s (>1) get positive exponents

Convert the following numbers into scientific notation

1. 0.000006 6.0×10^{-6} 2. 54000000 5.4×10^7 3. 0.009 9.0×10^{-3}
6 spaces 7 spaces 3 spaces
4. 203000000 2.03×10^8 5. 0.000216 2.16×10^{-4} 6. 48900 4.89×10^4
8 spaces 4 spaces 4 spaces

Convert the following numbers into standard notation

1. 2.66×10^4 26600 2. 1.5×10^{-4} .00015 3. 8.3×10^7 830000000
2.6600 .00015 830000000
4. 7.75×10^{-1} .775 5. 1.71×10^0 1.71 6. 8.4×10^{-5} .000084
.775 $10^0 = \text{move the decimal 0 times}$.000084

Add or subtract the following numbers in scientific notation

1. $7.32 \times 10^6 - 4.01 \times 10^4$ 7.28×10^6
7320000 - 40100 = 7279900
2. $5.26 \times 10^3 + 3.01 \times 10^4$ 3.54×10^4
5260 + 30100 = 35360
3. $6.4 \times 10^5 + 7.2 \times 10^3$ 6.47×10^5
640000 + 7200 = 647200
4. $8.6 \times 10^4 - 3.1 \times 10^2$ 8.57×10^4
86000 - 310 = 85690

Multiply or divide the following numbers in scientific notation

1. $(2.3 \times 10^{-6})(4.1 \times 10^{-5})$ 9.43×10^{-11}
 $(2.3 \times 4.1) \times 10^{(-6-5)}$
2. $\frac{(5.4 \times 10^3)}{(3.4 \times 10^6)} = (5.4 \div 3.4) \times 10^{3-6} = 1.5 \times 10^{-3}$
3. $(3.4 \times 10^3)(4.8 \times 10^4)$ 1.63×10^8
 $(3.4 \times 4.8) \times 10^{3+4} = 16.32 \times 10^7 = 163200000$
not between 1 and 10!
4. $\frac{(8.4 \times 10^5)}{(5 \times 10^3)} = (8.4 \div 5) \times 10^{5-3} = 1.68 \times 10^2$
Scientific Notation Word Problems

1. In Australia, the people use approximately 2,240,000,000 pounds of bread in a year. Write this number in scientific notation

$$2240000000 = 2.24 \times 10^9$$

9 spaces

2. The average size of a bedroom is 1,200 cubic meters. There are approximately 3.4×10^9 particles of dust per cubic meter. How many particles of dust are present in an average-sized bedroom?

$$1200 = 1.2 \times 10^3 \quad (1.2 \times 10^3)(3.4 \times 10^9)$$

$$(1.2 \times 3.4) \times 10^{3+9} = 4.08 \times 10^{12} \text{ dust particles}$$

3 spaces

3. If the speed of light is 3×10^8 meters/second, how many seconds does it take light to reach the Earth, if the sun is 1.5×10^{11} meters from Earth? Write your answer in scientific notation

$$\frac{1.5 \times 10^{11}}{3 \times 10^8} = (1.5 \div 3) \times 10^{11-8} = 0.5 \times 10^3 = 500 = 5.0 \times 10^2 \text{ seconds}$$

not between 1 and 10!