

#1-3, Find the value of each power of 10.

1.  $10^6$  2.  $10^{-5}$  3.  $10^9$   
 1,000,000 .00001  $\left(\frac{1}{100000}\right)$  1,000,000,000



#4-6, Write each number as a power of 10.

4. .000000001 5. 1,000,000,000,000 6. 0.1  
 $10^{-9}$   $10^{12}$   $10^{-1}$

#7-10, Write each value in decimal form.

7.  $9.46 \times 10^{-3}$  8.  $7 \times 10^5$  9.  $3.657 \times 10^8$  10.  $6.8 \times 10^{-5}$   
 .00946 700,000 365,700,000 .000068

#11-14, Write each in scientific notation form.

11. .0002 12. 23.5 13. 0.0000077 14. 40,180,000  
 $2 \times 10^{-4}$   $2.35 \times 10^1$   $7.7 \times 10^{-6}$   $4.02 \times 10^7$

15. Order the list from least to greatest:  $8.5 \times 10^{-1}$ ,  $3.6 \times 10^3$ ,  $5.85 \times 10^{-5}$ ,  $2.5 \times 10^{-1}$ ,  $8.5 \times 10^8$ ,  
3 4 1 2 5

16. At the beginning of the 21<sup>st</sup> century the population of China was about 1,287,000,000. Write the number in scientific notation.

$1.29 \times 10^9$

17. Gabe is allergic to pollen. The diameter of a grain of pollen is between  $1.2 \times 10^{-5}$  and  $9 \times 10^{-5}$  m. Gabe's air purifier has a filter that removes particles larger than  $3 \times 10^{-7}$  m. Will the filter remove the pollen?

yes  $1.2 \times 10^{-5} > 3 \times 10^{-7}$

#18-21, Is the number written in correct scientific notation? If not, fix it.

18.  $50 \times 10^{-5}$  19.  $8.1 \times 10^{25}$  20.  $0.25 \times 10^3$  21. 48,000  
 $5 \times 10^{-4}$  OK  $2.5 \times 10^2$   $4.8 \times 10^4$

22. Order from greatest to least:  $2.15 \times 10^{-1}$ ,  $5.12 \times 10^2$ ,  $1.25 \times 10^{-3}$ ,  $2.15 \times 10^{-2}$ ,  $1.52 \times 10^{-2}$ ,  $5.12 \times 10^{-3}$   
2 1 6 3 4 5

#23-25, Can you use laws of exponents or your calculator correctly? Write each answer in BOTH formats.

23.  $(3 \times 10^2)(2 \times 10^4)$  24.  $(2.2 \times 10^{-4})(4 \times 10^{-8})$  25.  $(5 \times 10^5)(1.5 \times 10^{-3})$   
 $6 \times 10^6$   $8.8 \times 10^{-12}$   $7.5 \times 10^2$   
 6,000,000 .0000000000088 750