

## Lesson 1-9: Understand Scientific Notation

1. Sample answer: Scientific notation is an efficient way of writing very large numbers or very small numbers. It consists of the product of two factors. The first is greater than or equal to 1 and less than 10 and the second is a power of 10.
2. Sample answer: No, his reasoning is not correct. The number in scientific notation needs to have a positive exponent because the number is greater than 1. A negative exponent indicates that a number is less than 1.
3. Sample answer: I disagree. The number that she is writing in scientific notation is less than 1, so the exponent will be negative.
4.  $5.864 \times 10^8$
5. 0.000000034 meter
6.  $4.4 \times 10^{-7}$  meter
7. 7,600,000,000,000
8. 150,000,000
9. 5.87; - 17
10. No; The first factor is not between 1 and 10.
11. Yes, because the first factor, 8.6, is between 1 and 10 and  $10^7$  is a power of 10.
12. 0.000000000052
13.  $1.038 \times 10^{-5}$
14.  $8 \times 10^4$
15. 8,190,000,000,000,000
16. a. Move the decimal point 7 places to the left.  
b. 0.0000005871
17. 0.0258
18.  $1.6 \times 10^6$  centimeters
19. 0.0000052 m
20.  $4.3 \times 10^6$  m;  $4.3 \times 10^9$  mm
21. C, F
22. a.  $5.49 \times 10^{-14}$   
b. 0.00000000000000549