

Lesson 1-10: Operations with Numbers in Scientific Notation

1. Sample answer: Using scientific notation allows you to compute with fewer digits.
2. Sample answer: When multiplying and dividing numbers in scientific notation, the final answer must have a first factor that is less than 10. You may have to rewrite the calculated answer. For example, rewrite 12.15×10^4 as 1.215×10^5 .
3. Sample answer: The exponent is 5 in the sum because the sum of 5.2 and 6.95 is 12.15, which is greater than 1. You move the decimal point one place to the left and increase the exponent by 1.
4. About 1.04×10^6 bacteria
5. a. About 3.3×10^6 spacecraft
6. a. 9.72×10^{23} kg
b. 3.12×10^{23} kg
7. 7; 7; -6; -6
49; -12
-11
8. 3.76; 7.44; 5
11.2; 10^5
6
9. 2
10. 4.5×10^3
11. 1.59×10^{-18} g
12. No; Sample answer: Product means to multiply, and when multiplying with numbers in scientific notation, you should add the exponents. The exponent should be 5 instead of -5.
13. 2.4×10^{-6}
14. 2.537×10^{15} miles
15. About 7.6 gallons
16. About 6.984×10^8 kilometers
17. About 1.52×10^4 pounds
18. a. 6
b. Sample answer: When multiplying 5×3 , the product 15 needs to be written as 1.5×10^1 in scientific notation. $1 + 5 + 6 = 12$
19. 5.0×10^7 ; Sample answer: The quotient of the decimal factors is less than 1. For the quotient to be in scientific notation you will have to move the decimal, which will change the exponent on the base 10.
20. B