

Review of Basic Mathematics

An important skill in Chem 260 is the ability to rearrange mathematical expressions to isolate a variable of interest; these questions provide practice in this:

1. Rearrange the equation $(a + b/c)(d - e) = f$ by solving for a in terms of the other variables.
2. Rearrange the equation $a = b\left(\frac{1}{c} - \frac{1}{d}\right)$ by solving for c in terms of the other variables.

To gain comfort with logarithms, determine the value of x in the following to two decimal places:

3. $\log(x) = 0.83$
4. $x = \log(1.35 \times 10^{-5})$
5. $79 = 33^x$

Working with quadratic equations is something we will encounter later this semester when solving equilibrium problems; these questions provide practice in working with quadratic equations:

6. Rearrange the equation $0.20 = \frac{x^2}{55-x}$ into the form $ax^2 + bx + c$.
7. To three decimal places, what are the roots for the equation $3x^2 + 33x - 6.5 = 0$?

Comfort with scientific notation is important, both in recognizing relative magnitudes and in entering values in your calculator; these questions provide practice with scientific notation:

8. Rank the following numbers from smallest-to-largest in magnitude: 9.0×10^{-6} , 8.1×10^{-6} , 1.6×10^5 , 4.1×10^{-2} , 5.8×10^4
9. Convert the following from decimal to scientific notation, or from scientific notation to decimal notation: 0.000139, 452.78, 7.35×10^{-2} , 1.35×10^5
10. What is the value of x if $x = \frac{10^{-15}}{3.9 \times 10^{-7}}$?