Percentage and Parts per Million

1. There are a total of 58 students in a class. The last exam had 35% receive an A, 24% receive a B, and the remaining students received a C. How many C's were received?

    100% – (35% + 24%) = 41% received a C.
    41/100 = 0.41
    0.41 x 58 = **24 students received a C.**

2. A gaming club has 35% more gamers in Level 1 than in Level 2. There are a total of 145 gamers in Level 1. How many gamers are in Level 2?
    The percentage of gamers in level 1 is 100% + 35% = 135%
    135/100 = 1.35 We can use 1.35x to represent the number in Level 1. So, 1.35x = 145. Solve for x. x = **107 gamers in Level 2.**

3. A compound, $NaHCO_3$ (baking soda) has a mass of 84.0 g. The percent by mass of Na is 27.4%, C is 14.3%, and H is 1.20%. What is the percentage of oxygen in the compound?

    % Oxygen = 100% – (27.4% + 14.3%) = **58.3%**

4. A large creek is located by a steel mill. A 2622 g sample of water was found to contain 0.0075 g of Cr^{6+} ion. Chromium (VI) ion is a carcinogen. Calculate the following:

    percentage of Cr^{6+}
    $$\frac{0.0075\,g}{2622\,g} \times 100 = \mathbf{0.00029\%}$$

    ppm of Cr^{6+}
    $$\frac{0.0075\,g}{2622\,g} \times 10^6 = \mathbf{2.9\;ppm}$$

    ppb of Cr^{6+}

    $$\frac{0.0075\,g}{2622\,g} \times 10^9 = \mathbf{2.9 \times 10^3\;ppb}$$