Math Diversion Problem 814

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> Conformal infinity is a very fascinating
> topic in relativity.
> — Tobias Osborne

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Source: https://www.dsd.k12.wi.us/faculty/SBAXTER/Unit
                  %205%20Practice%20Problems%20(answers).pdf
Title:  Molecules-to-Molecules
 Presenter:  Patrick
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1 Problem: Molecules-to-Molecules

Given the balanced equation $2H_2 + O_2 \rightarrow 2H_2O$, how many molecules of water are produced from 2.0×10^{23} molecules of oxygen?

SOLUTION:

We begin with a diagram.

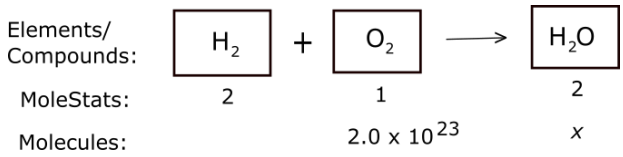

Figure 1. This graphic displays the products in the form of a lumped term, which is of no particular interest to us in this problem.

Next, we write down our mole proportion between columns 2 and 3:

$$\frac{2}{1} = \frac{x}{2.0 \times 10^{23} \text{ molecules}}\,. \tag{1}$$

Solving for x, we get

$$x = 4.0 \times 10^{23} \text{ molecules}\,. \tag{2}$$