Answer on Question #50410, Chemistry, Other

1.How many moles of water does 6.02×10^{23} molecules represent?

2.Convert 3.01×10^{23} molecules of C_2H_6 to moles.

3. How many moles of glucose does 1.2×10^{24} formula units represent?

4. How many moles of $CaCl_2$ does 2.41×10^{24} formula units represent?

Solution 1:

$$n = \frac{N}{N_A}$$

$N_A = 6.02 \times 10^{23}$

$$n = \frac{6.02 \times 10^{23}}{6.02 \times 10^{23}\ mol^{-1}} = 1\ mol$$

Answer 1:

1 mol of water

Solution 2:

$$n = \frac{N}{N_A}$$

$N_A = 6.02 \times 10^{23}$

$$n = \frac{3.01 \times 10^{23}}{6.02 \times 10^{23}\ mol^{-1}} = 0.5\ mol$$

Answer 2:

0.5 moles of C_2H_6

Solution 3:

$$n = \frac{N}{N_A}$$

$N_A = 6.02 \times 10^{23}$

$$n = \frac{1.2 \times 10^{24}}{6.02 \times 10^{23}\ mol^{-1}} = 1.99\ mol$$

Answer 3:

1.99 moles of glucose

Solution 4:

$$n = \frac{N}{N_A}$$

$N_A = 6.02 \times 10^{23}$

$$n = \frac{2.41 \times 10^{24}}{6.02 \times 10^{23}\ mol^{-1}} = 4\ mol$$

Answer 4:

4 moles of $CaCl_2$