Counting Particles with Moles Worksheet

Scoring guide · one credit per question · review written work against each rubric

Counting Particles with Moles

Question 1

Choice (2)

Multiply 0.500 mol by 6.02×10^{23} molecules per mole.

Question 2

Divide 1.204×10^{24} atoms by 6.02×10^{23} atoms/mol to get 2.00 mol.

Question 3

Choice (4)

Sodium chloride is ionic. The formula unit represents a 1:1 ratio of sodium and chloride ions.

Question 4

Each O_2 molecule contains two O atoms. Counting one mole of molecules therefore gives twice as many atoms, or two moles of O atoms.

Comparing Pure Samples

Question 5

Choice (1)

P and Q each contain 0.250 mol of molecules.

Question 6

Sample P has 0.250 mol of CO_2 molecules. Each contains two O atoms, giving 0.500 mol of O atoms. Multiply by 6.02×10^{23} atoms/mol to get 3.01×10^{23} O atoms.

Question 7

Choice (3)

0.500 mol is twice 0.250 mol, so R contains twice as many of its counted entities.

Question 8

The two counts are equal. NaCl has one chloride ion per formula unit.