

Exercise 7.3b

Mole-Mass & Mass-Mole Conversions

Name: _____

Date: _____ Per: _____

One Step: Mole → Mass Conversions

$$\frac{\text{mol } X}{1 \text{ mol } X} \left| \frac{\text{molar mass } X}{1 \text{ mol } X} \right. = \text{_____ g } X$$

One Step: Mass → Mole Conversions

$$\frac{\text{g } X}{\text{molar mass } X} \left| \frac{1 \text{ mol } X}{\text{molar mass } X} \right. = \text{_____ mol } X$$

DIRECTIONS: Calculate the mass of:

- 1.00 mol ethanol (C₂H₅OH)
- 0.6383 mol barium cyanide
- 0.010 mol oxygen
- 7.185 x 10⁻⁴ mol argon

DIRECTIONS: Calculate the number of moles in:

- 87.4 g calcium bromide
- 12.5000 g ethene (C₂H₄)
- 1.25 kg hydrogen
- 146 g helium

One Step: Mole → Particles Conversion

$$\frac{\text{mol } X}{1 \text{ mol } X} \left| \frac{6.022 \times 10^{23} \text{ p. } X}{1 \text{ mol } X} \right. = \text{_____ p. } X$$

One Step: Particle → Mole Conversions

$$\frac{\text{p. } X}{6.022 \times 10^{23} \text{ p. } X} \left| \frac{1 \text{ mol } X}{6.022 \times 10^{23} \text{ p. } X} \right. = \text{_____ mol } X$$

DIRECTIONS: Calculate the number of representative particles in:

- 1.265 mol niobium (V) iodide
- 0.249 mol ethanol
- 2.0 mol sodium chloride
- 0.0250 mol ammonium iodate

DIRECTIONS: Calculate the number of moles in:

- 4.58 x 10²⁴ formula units barium cyanide
- 2.1 x 10²⁵ m. oxygen
- 8.54 x 10²³ formula units CaBr₂
- 1.35 x 10²⁴ atoms sodium

Exercise 7.3b

Particle-Mass & Mass-Particle Conversions

Name: _____

Date: _____ Per: _____

Two Step: Particle → Mass Conversions

$$\frac{\text{p. } X}{6.022 \times 10^{23} \text{ p. } X} \times \frac{1 \text{ mol } X}{1 \text{ mol } X} \times \frac{\text{molar mass } X}{1 \text{ mol } X} = \text{_____ g } X$$

DIRECTIONS: Calculate the mass of:

17. 3.45×10^{24} molecules ethanol

18. 9.17×10^{23} formula units barium cyanide

19. 1.45×10^{22} molecules oxygen

Two Step: Mass → Particle Conversions

$$\frac{\text{_____ g } X}{\text{molar mass } X} \times \frac{1 \text{ mol } X}{1 \text{ mol } X} \times \frac{6.022 \times 10^{23} \text{ p. } X}{1 \text{ mol } X} = \text{_____ p. } X$$

DIRECTIONS: Calculate the number of particles in:

20. 178 g calcium bromide

21. 125.0 g ethene

22. 15.2 g helium