

WORKSHEET ON BASIC STOICHIOMETRY

1. Convert the following number of moles of chemicals into their corresponding mass in grams.

A. 0.436 moles of ammonium chloride

B. 2.36 moles of lead (II) oxide

C. 0.031 moles of aluminum iodide

D. 1.077 moles of magnesium phosphate

2. Convert the following masses into their corresponding number of moles.

A. 23.5 g of sodium chloride

B. 0.778 g of sodium cyanide

C. 0.250 g of water

D. 169.45 g of calcium acetate

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Answers

1. Convert the following number of moles of chemicals into their corresponding mass in grams.

A. 0.436 moles of ammonium chloride

$$0.436 \text{ mol NH}_4\text{Cl} \times (53.49 \text{ g NH}_4\text{Cl} / 1 \text{ mol NH}_4\text{Cl}) = 23.32 \text{ g NH}_4\text{Cl}$$

B. 2.36 moles of lead (II) oxide

$$2.36 \text{ mol PbI}_2 \times (461.01 \text{ g PbI}_2 / 1 \text{ mol PbI}_2) = 1088 \text{ g PbI}_2$$

C. 0.031 moles of aluminum iodide

$$0.031 \text{ mol AlI}_3 \times (407.7 \text{ g AlI}_3 / 1 \text{ mol AlI}_3) = 12.64 \text{ g AlI}_3$$

D. 1.077 moles of magnesium phosphate

$$1.077 \text{ mol Mg}_3(\text{PO}_4)_2 \times (262.87 \text{ g Mg}_3(\text{PO}_4)_2 / 1 \text{ mol Mg}_3(\text{PO}_4)_2) = 283.11 \text{ g Mg}_3(\text{PO}_4)_2$$

2. Convert the following masses into their corresponding number of moles.

A. 23.5 g of sodium chloride

$$23.5 \text{ g NaCl} \times (1 \text{ mol NaCl} / 58.44 \text{ g NaCl}) = 0.4 \text{ mol NaCl}$$

B. 0.778 g of sodium cyanide

$$0.778 \text{ g NaCN} \times (1 \text{ mol NaCN} / 49 \text{ g NaCN}) = 0.016 \text{ mol NaCN}$$

C. 0.250 g of water

$$0.250 \text{ g H}_2\text{O} \times (1 \text{ mol H}_2\text{O} / 18 \text{ g H}_2\text{O}) = 0.014 \text{ mol H}_2\text{O}$$

D. 169.45 g of calcium acetate

$$169.45 \text{ g Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 \times (1 \text{ mol Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 / 158.17 \text{ g Ca}(\text{C}_2\text{H}_3\text{O}_2)_2) = 1.07 \text{ mol Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$$