MOLE CALCULATION WORKSHEET

Answer the following questions.

1) How much does 4.2 moles of $Ca(NO_3)_2$ weigh?

2) How many moles are there in 34 grams of $Cu(OH)_2$?

3) How many grams are in 3.7 moles of Na_2O?

4) How many moles are present in 2.45 x 1023 molecules of CH_4?

5) How many molecules are in 48 grams of NaOH?

6) How many moles are present in 25 grams of water?

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Answers

1) How much does 4.2 moles of $Ca(NO_3)_2$ weigh?

Molar mass of $Ca(NO_3)_2$ = 164.1 g/mol

So, 4.2 moles of $Ca(NO_3)_2$ weigh = 4.2 x 164.1 grams = 689.22 grams

2) How many moles are there in 34 grams of $Cu(OH)_2$?

Molar mass of $Cu(OH)_2$ = 97.5 g/mol

34 grams of $Cu(OH)_2$ represent = (34/97.5) moles = 0.348 moles

3) How many grams are in 3.7 moles of Na_2O?

Molar mass of Na_2O = 61.97 g/mol

3.7 moles of Na_2O weighs = 229.28 grams

4) How many moles are present in 2.45 x 1023 molecules of CH_4?

6.023×10^{23} molecules of CH_4 represent 1 mole

2.45×10^{23} molecules of CH_4 represent 0.4 moles

5) How many molecules are in 48 grams of NaOH?

Molar mass of NaOH = 39.997 g/mol

39.997 grams of NaOH is the weight of 6.023×10^{23} molecules

48 grams of NaOH is the weight of $(48/39.997) \times 6.023 \times 10^{23}$ molecules = 7.2×10^{23} molecules

6) How many moles are present in 25 grams of water?

Molar mass of water = 18 g/mol

Number of moles are present in 25 grams of water = (25/18) moles = 1.38 moles