Chemistry 11 Molar Mass Worksheet #3

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1. What is the mass of 3.7 moles of NaCl?

F.W. = 23.0 + 35.5 = 58.5 u = 58.5 g/mol

3.7 mol × 58.5 g/mol = 220 g → 2.2×10^2 g (2 sig. fig's)

2. What is the number of moles in 48 g of H_2O?

F.W. = 2.0 + 16.0 = 18.0 u = 18.0 g/mol

$\frac{48\ g}{18.0\ g/mol} = 2.7\ mol$

3. How many moles are there in 0.361 g of HNO_3?

F.W. = 1.0 + 14.0 + 48.0 = 63.0 u = 63.0 g/mol

$\frac{0.361\ g}{63.0\ g/mol} = 5.73 \times 10^{-3}\ mol$

4. What is the atomic mass of X if 3.6 moles have a mass of 192 g?

$\frac{192\ g}{3.6\ mol} = \frac{x}{1\ mol}$ $\frac{192\ g}{3.6\ mol} = 53\ g/mol$

$\therefore 53\ u$

5. What is the mass of 4.5 moles of $MgCl_2$?

FW = 24.3 + 71.0 = 95.3 u = 95.3 g/mol

4.5 mol × 95.3 g/mol = 430 g

6. How many moles are there in 45.7 g of CaO?

FW = 40.1 + 16.0 = 56.1 u = 56.1 g/mol

$\frac{45.7\ g}{56.1\ g/mol} = 0.815\ mol$

7. What is the atomic mass of X if 4.5 moles have a mass of 235 g?

$\frac{235\ g}{4.5\ mol} = \frac{x}{1\ mol}$ $\frac{235\ g}{4.5\ mol} = 52\ g/mol$

$= 52\ u$