Introduction to the Mole and Molar Mass

1. What is a mole?

A unit of measurement that contains 6.02×10^{23} particles.

2. What is Avogadro's number? 6.02×10^{23}

3. What do 1 mole of mercury and 1 mole of silver have in common?

They both contain 6.02×10^{23} particles (atoms).

4. Calculate the molar mass of the following:

Ba	Cl_2	$MgCl_2$	NaOH
137.33 g/mol	35.45 + 35.45 = **70.90 g/mol**	24.31 + 2(35.45)= **95.21 g/mol**	22.99+ 16.00 + 1.01 = **40.00 g/mol**
$Zn(NO_3)_2$	$(NH_4)_2SO_4$	$C_6H_{12}O_6$	$Mg_3(PO_4)_2$
65.39 + 2(14.01) + 6(16.00)= **189.41 g/mol**	2(14.01) + 8(1.01) + 32.07 + 4(16.00)= **132.07 g/mol**	6(12.01) + 12(1.01) + 6(16.00)= **180.18 g/mol**	3(24.31) + 2(30.97) + 8(16.00)= **262.87 g/mol**

5. Using the values above, what would be the molar mass if you had….

2 moles of Ba	137.33x2= **274.66 g/mol**
0.5 moles $(NH_4)_2SO_4$	132.07x0.5 = **66.04 g/mol**
0.75 moles of NaOH	40.00 x 0.75 = **30.00 g/mol**
3 moles of $MgCl_2$	95.21 x 3 = **285.63 g/mol**