Equation Calculation Questions 2

For these, once you have calculated the number of moles, we can convert the moles to a mass *by using* ***m = n x M.***

Question 1 What mass of Sulfur Dioxide would be produced from 0.2 moles of Sulfur?

Mole ratio:	*1*	:	*8*	:	*8*	
Equation	S_8	+	$8O_2$	→	$8SO_2$	
	known				*unknown*	
Moles(n):	0.2			x (8/1) →		

Number of moles of sulfur dioxide produced = 0.2 x (8/1) = ……. moles

$M(SO_2)$ = 32.06 + (2 x 16.00) *(from table)*
= 64.06

m = n x M

So: mass of SO_2 = …….. x 64.06 = g =

Question 2 What mass of Magnesium would be required to produce 0.25 moles of Hydrogen gas?

Mole ratio:	*1*	:	*2*	:	*1*	:	*1*	
Equation	Mg	+	2HCl	→	$MgCl_2$	+	H_2	
Moles(n):							0.25	

Question 3 Iron is produced from Haematite in a blast furnace from this reaction:

Mole ratio:	*1*	:	*3*	:	*2*	:	*3*	
Equation	Fe_2O_3	+	3CO	→	2Fe	+	$3CO_2$	

(a) What mass of Haematite (Fe_2O_3) would produce 100 moles of iron?

(b) What mass of Carbon Dioxide would also be produced?

Answers: 1. 102.5 grams 2. 6.08 grams 3. (a) 7985 g (or 7.99 kg)
(b) 6601 g (or 6.60 kg)