

# Happy New Year!



The sum =

Complete one problem on this page and pass it to the person on your left. Show all your calculations. Pay close attention to your significant figures.

Equation $4 \text{ NH}_3 + 5 \text{ O}_2 \rightarrow 4 \text{ NO} + 6 \text{ H}_2\text{O}$		
Question	Calculation	Answer
How many moles of $\text{NH}_3$ are needed to produce 3.0 moles of water?		
What mass of oxygen will react with 0.25 mol $\text{NH}_3$ ?		
How many moles of oxygen are required to produce 34.6 g of water?		
If 7.4 g of water is produced, what mass of nitrogen monoxide is also produced?		

1. Add up the digits in the ones column of each of your answers.
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3. Check your sum with the teacher.

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Equation $\text{CH}_4 + 4 \text{Cl}_2 \rightarrow \text{CCl}_4 + 4 \text{HCl}$		
Question	Calculation	Answer
How many moles of HCl would be produced when 2 moles of $\text{CH}_4$ react?		
What mass of $\text{Cl}_2$ is needed to react with 0.0046 mol of $\text{CH}_4$ ?		
If 177 g of $\text{Cl}_2$ react, how many moles of $\text{CCl}_4$ are produced?		
What mass of HCl is formed when 2.7 g of $\text{CCl}_4$ is also produced?		

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Equation $\text{C}_3\text{H}_8 + 5 \text{O}_2 \rightarrow 3 \text{CO}_2 + 4 \text{H}_2\text{O}$		
Question	Calculation	Answer
If 30 moles of $\text{CO}_2$ are produced, how many moles of $\text{O}_2$ reacted?		
When 4.3 moles of oxygen react, what mass of water is produced?		
If 1081 g of $\text{CO}_2$ are produced, how many moles of $\text{C}_3\text{H}_8$ reacted?		
What mass of $\text{C}_3\text{H}_8$ is needed to react with 115 g of $\text{O}_2$ ?		

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Equation $2 \text{ Al} + 3 \text{ MnCl}_2 \rightarrow 2 \text{ AlCl}_3 + 3 \text{ Mn}$		
Question	Calculation	Answer
How many moles of $\text{MnCl}_2$ react to form 14 moles of $\text{AlCl}_3$ ?		
How many grams of aluminum are required to react with 1.0 mol $\text{MnCl}_2$ ?		
How many moles of manganese form when 1067 g of aluminum chloride is produced?		
What mass of $\text{MnCl}_2$ reacts to form 61.1 g of manganese?		

o mass-mass

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