

Chemistry 1 a Week Activity Higher Answers		33 rd Week
Name: Class:		
Nitric acid can be titrated with a solution of ammonia. i. State the type of reaction occurring when nitric acid reacts with ammonia. Neutralisation ii. What salt is formed in this reaction? Ammonium nitrate	Calculate the atom economy for the formation of calcium oxide in this reaction. $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ $56 \div 100 = 0.56 \times 100 = 56\%$	
The equation below shows a reaction to produce ammonia at equilibrium. $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$ i. State the name of the industrial process to manufacture ammonia. The Haber process. ii. Predict the effect that increasing the pressure will have on the position of equilibrium. It will shift to the right favouring the forward reaction. As there are fewer moles on the right hand of the reaction. iii. Predict the effect that adding the catalyst has on the rate of attainment of equilibrium. It decreases the time it takes to reach equilibrium. iv. Predict the effect that adding the catalyst has on the equilibrium yield of ammonia. No effect – but it does decrease the time it takes to reach equilibrium.		
A solution for KNO_3 has a concentration of 26 g/dm^3 what is this in mol/dm^3? $\text{Mol/dm}^3 = \text{g/dm}^3 \div \text{Mr}$ $\text{Mol/dm}^3 = 26 \text{ g/dm}^3 \div 101$ $= 0.257 \text{ mol/dm}^3$	Ethanoic acid is a weak acid. Why is ethanoic acid a weak acid? Ethanoic acid only <u>partially dissociates/ionises</u> when dissolved in solution.	
A sample of calcium carbonate is strongly heated in a crucible until there is no further loss in mass. The mass of calcium oxide remaining in the crucible is 5.450 g. The theoretical yield of calcium oxide in this experiment is 5.600 g. Calculate the percentage yield of calcium oxide. Give your answer to 3 significant figures. Percentage yield = (actual yield $\div$ theoretical yield) $\times$ 100 Percentage yield = $(5.450 \div 5.600) \times 100$ Percentage yield = 97.3 %		