

LIZARDI BHI 2009-10	Topics: Organic Nomenclature Gases, Solutions Chemical Calculus	Marks:
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2nd. term		
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<b>1</b>	<p>A solution of calcium hydroxide has a volume of 420 mL and contains 20 percent of <math>\text{Ca(OH)}_2</math> by mass. The density of this solution is 1.12 g/mL. Calculate:</p> <p>a) the concentration in mol/L and g/L b) the amount of solute in grams and moles</p>
Atomic weights: Ca=40; O=16; H=1	

<b>2</b>	Calculate the volume of water we need to add to an initial solution of 0.4 L and 8 M in order to get a solution 3.2 M.
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<b>3</b>	<p>Magnesium and nitric acid (<math>\text{HNO}_3</math>) react to form magnesium nitrate, <math>\text{Mg(NO}_3)_2</math>, and hydrogen.</p> <p>If we have 250 g of magnesium and 400 mL of a solution of nitric acid (40% of concentration and density 1.28 g/mL)</p> <p>a) determine which is the limiting reactant b) how much magnesium nitrate is formed (in moles and grams) c) how much reactant is in excess (in grams) d) the volume of hydrogen formed at 4 atm and 27 °C</p>
Atomic weights: N=14; H=1; O=16; Mg=24 R=0.082 atm.L/K.mol	

<b>4</b>	Calculate the amount of carbon dioxide (in grams and moles) formed when 120 g of 2-butene ( $\text{C}_4\text{H}_8$ ) are burned.
Atomic weights: O=16; H=1; C=12	