

*How to succeed in Chem Calcs the Hogan method.*

*Most Calculations can be done by following these steps. Each step IS achievable.  
You should get to the stage where it becomes your own modus operandi.*

<i>STEP</i>	<i>What you do</i>
<i>1</i>	<i>Identify the <b>given</b> and <b>asked for</b> in the question.</i>
<i>2</i>	<i>Write down the <u>balanced equation</u> involving the <b>given</b> and <b>asked for</b>.</i>
<i>3</i>	<i>Underneath the <b>given</b> and <b>asked for</b> represented in the equation now write down those values using an algebraic term (<math>x</math> or <math>y</math>) for the unknown.</i>
<i>4</i>	<i>Write a mole statement linking the <b>given</b> and <b>asked for</b>. By referring to the balanced equation.</i>
<i>5</i>	<i>Change the given into moles, if required.</i>
<i>6</i>	<i>Use mole statement from step 4 to get an answer in moles.</i>
<i>7</i>	<i>Convert answer in moles into other units as required.</i>

*Simple Example : What mass of aluminium oxide forms when 50.0 grams of aluminium gets completely oxidised?*

<i>STEP</i>	<i>What you do</i>	<i>What it may look like</i>
1	Identify the <b>given</b> and <b>asked for</b> in the question.	What mass of <u>aluminium oxide</u> forms when 50.0 grams of <u>aluminium</u> gets completely oxidised?
2	Write down the <u>balanced equation</u> involving the <b>given</b> and <b>asked for</b> .	$4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$
3	Underneath the <b>given</b> and <b>asked for</b> represented in the equation now write down those values using an algebraic term ( $x$ or $y$ ) for the unknown.	$  \begin{array}{ccc}  4\text{Al} + 3\text{O}_2 & \rightarrow & 2\text{Al}_2\text{O}_3 \\  50.0\text{g} & & x\text{g}  \end{array}  $
4	Write a mole statement linking the <b>given</b> and <b>asked for</b> . By referring to the balanced equation.	$n(\text{Al}_2\text{O}_3) = \frac{1}{2} n(\text{Al})$
5	Change the given into moles, if required.	$n(\text{Al}) = 50/27 = 1.85 \text{ moles}$
6	Use mole statement from step 4 to get an answer in moles.	$n(\text{Al}_2\text{O}_3) = \frac{1}{2} \times 1.85 = 0.926 \text{ moles}$
7	Convert answer in moles into other units as required.	$  \begin{aligned}  m(\text{Al}_2\text{O}_3) &= 0.926 \times M(\text{Al}_2\text{O}_3) \\  &= 0.926 \times 102 \\  &= 94.5 \text{ g.}  \end{aligned}  $