#11-1

Introduction to Completion vs. Equilibrium

Completion:

8g
8 grams of methane burns in excess O_2 to produce CO_2 and H_2O.

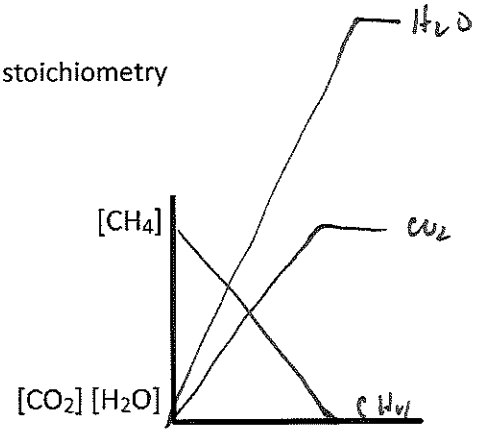
1. Write a balanced combustion reaction with an ISE table showing stoichiometry

$8g \cdot \frac{1 mol}{16g} = .5$

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

	CH_4	$2O_2$	CO_2	$2H_2O$
I	0.5 mol			
S	-.5	-1.0	+0.5	+1.0
E	0			

2. Draw a graphical representation tracking concentrations:

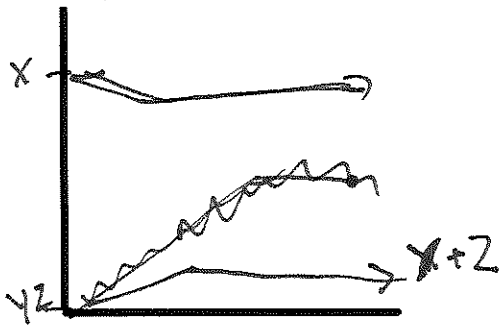


3. A Chemical process of .5M of X only goes 20% to product producing Y and Z. Write a balanced reaction with an ISC table showing ISE stoichiometry.

$X \rightarrow Y + Z$

	X	Y	Z
I	0.5		
S	-.1	+.1	+.1
E	.4	.1	.1

4. Draw a graphical representation of this process?

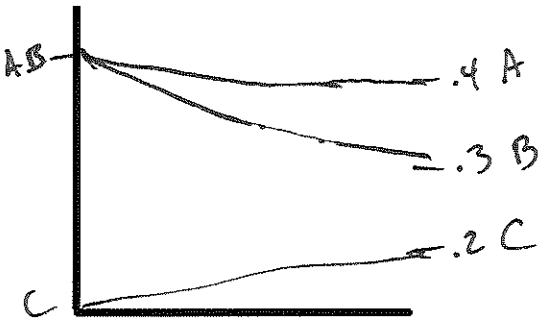


A chemical process of $A + 2B \leftrightarrow 2C$. A and B both start at a concentration of .5M and when the process has come to equilibrium 20% of A is converted.

5. Write the equilibrium expression for this reaction.
6. Determine Kc for this process.
7. Draw a graphical representation of concentration.

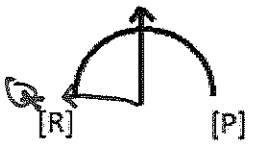
$A + 2B \rightleftharpoons 2C$

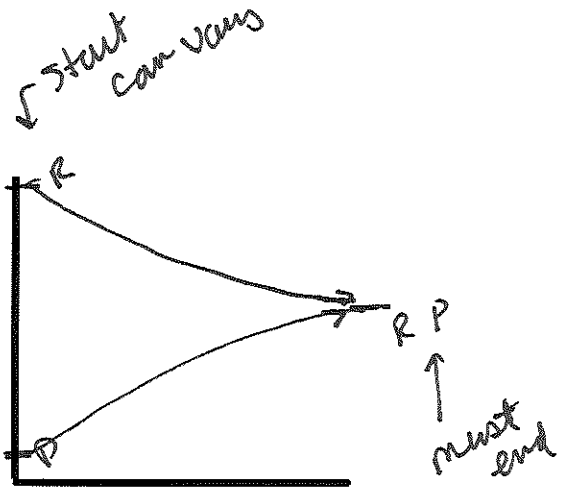
	A	2B	2C
I	0.5	0.5	0
S	-.1	-.2	+.2
E	.4	.3	.2



8.

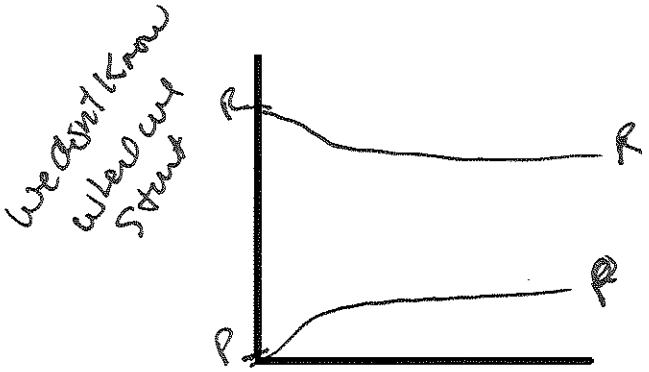
STP [R] = 1M [P] = 1M





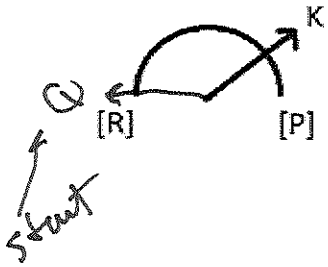
9. $R \leftrightarrow P$

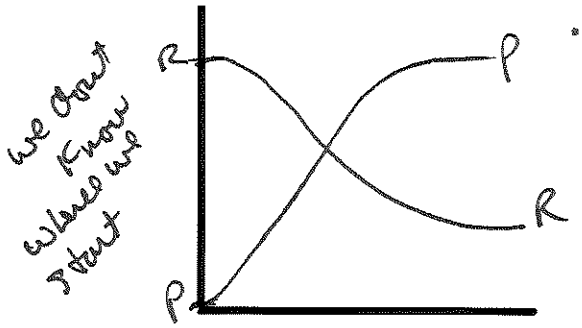
Reactant Favored Reaction



10. $R \leftrightarrow P$

Product Favored Reaction





11. Using the graph draw an arrow on the gauge indicating placement of equilibrium ratios.