

Equilibrium Problems Involving ICE Tables
 $A(g) + B(g) \rightleftharpoons 2 C(g) + D(s)$

Reaction	BCE	A	B	2 C	D
Initial concentrations You can add anything here in any ratio you want.		0.1	0.2	0	
Change in concentration (i.e. how much reacted or formed) More ratios from the BCE must be obeyed here!!		-x	-x	+2x	
Equilibrium concentrations (i.e. the concentrations after the reaction has reached equilibrium).		0.1-x	0.2-x	2x	

Handwritten notes: "BCE" and "Key" are circled in blue. A yellow arrow points from the "Key" label to the equilibrium row. A red bracket is on the right side of the table.

Overview for Solving Problems Using the Equilibrium Constant

- Write the BCE in the B line of the ICE table.
- Cross out any solids or liquids.
- Fill in any initial concentrations in the I line. You may use moles or mol/L here. Pay attention to the **VOLUME** of the container.
- Fill in the C line with any changes in the concentrations. You must obey the mole ratios from the BCE in this line!!
- Fill in the E line with the concentrations present at equilibrium.
- Write the **Key** expression using the BCE. No solids or liquids!

Handwritten calculation:

$$K_{eq} = \frac{[C]^2}{[A][B]} = \frac{(2x)^2}{(0.1-x)(0.2-x)} = 52$$

Handwritten note: "(values)" written above the equation.