Equilibrium Quiz ✓+ **Name:** Fiona Reed

May I post your solution? [X] Yes [ ] No [ ] Yes, but redact my name

Consider the reaction: **$2NOCl\ (g) \rightleftarrows 2NO\ (g) + Cl_2\ (g)$**

At 35 °C, the equilibrium constant is $K_c = 1.6 \times 10^{-5}$. In an experiment, you place 1.0 mol of NO (g) and 1.0 mol of Cl_2 (g) into a 2.0 L container and allow the system to reach equilibrium.

Set up an ICE chart and an expression that would allow you to calculate the equilibrium concentration of NO (g).

$$K_c = \frac{[NO]^2[Cl_2]}{[NOCl]^2} = 1.6\times10^{-5}$$

	NO	Cl_2	NOCl
I	0.5M	0.5M	0
C	$-x$	$-\frac{1}{2}x$	$+x$
E			

$$1.6\times10^{-5} = \frac{(0.5-x)^2(0.5-0.5x)}{x^2}$$

Solve for x, and plug x into the ICE table to find the equilibrium concentrations of each component of the reaction

Interesting choice to work in fractions, but correct!

Equilibrium Quiz ✓+ **Name:** Hannah Forbes

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Set up an ICE chart and an expression that would allow you to calculate the equilibrium concentration of NO (g).

$$\frac{1.0\ mol\ NO}{2.0\ L} = 0.50\ M\ NO \qquad \frac{1.0\ mol\ Cl_2}{2.0\ L} = 0.50\ M\ Cl_2$$

R:	$2\ NOCl\ (g)$	$\rightleftharpoons$	$2\ NO\ (g)$	$+\ Cl_2\ (g)$
I:	0		0.50 M	0.50 M
C:	$+2x$		$-2x$	$-x$
E:	$2x$		$0.50-2x$	$0.50-x$

$$K_c = \frac{[NO]^2[Cl_2]}{[NOCl]^2}$$

$$1.6\times10^{-5} = \frac{(0.50-2x)^2(0.50-x)}{(2x)^2}$$

Equilibrium Quiz ✓+7

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Set up an ICE chart and an expression that would allow you to calculate the equilibrium concentration of NO (g).

M	$2NO$	$+ Cl_2$	$\rightleftharpoons$	$2NOCl$
I	0.5	0.5		0
C	$-2x$	$-x$		$+2x$
E	$0.5-2x$	$0.5-x$		$2x$

$[0.5-2x]$

$\frac{1}{K_c} = \frac{[NOCl]^2}{[NO]^2[Cl_2]}$

$= \frac{1}{1.6\times10^{-5}}$

$\frac{1}{1.6\times10^{-5}} = \frac{[2x]^2}{[0.5-2x]^2[0.5-x]}$

solve for x, then plug in

$[NO] = \frac{1.0\,mol}{2.0\,L} = 0.5\ M$

$[Cl_2] = \frac{1.0\,mol}{2.0\,L} = 0.5\ M$

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Set up an ICE chart and an expression that would allow you to calculate the equilibrium concentration of NO (g).

$K_c = \frac{[NO]^2[Cl_2]}{[NOCl]^2}$

$[\ ] = \frac{mol}{L}$ $\frac{1}{2}$, $\frac{1}{2}$

	$2NOCl$	$\rightarrow 2NO +$	Cl_2
I	0	0.5	0.5
C	$+x$	$-2x$	$-x$
E	$+x$	$0.5-2x$	$0.5-x$

$1.6\times10^{-5} = \frac{[0.5-2x]^2[0.5-x]}{[x]^2}$

solve for x, then plug into $0.5-2x$ to find equilibrium [ ]