

AP Unit 6 Kahoot Quiz Key



1.0	1.0	∅
$\frac{-x}{1.0-x}$	$\frac{-x}{1.0-x}$	$\frac{+2x}{2x}$

$$3 = \frac{2x}{1-x}$$

$$3 - 3x = 2x$$

$$3 = 5x$$

$$x = \frac{3}{5} = 0.6$$

$$K = \frac{[\text{BrCl}]^2}{[\text{Br}_2][\text{Cl}_2]} = \frac{(2x)^2}{(1.0-x)^2} = \sqrt{9.0}$$

$$[\text{BrCl}] = 2x = \boxed{1.2\text{M}}$$

#5.) $K = \frac{[\text{B}][\text{C}]^2}{[\text{A}]^2} = \frac{(\frac{4}{3})(\frac{3}{3})^2}{(\frac{1}{3})^2} = \frac{4/3}{1/9} = \frac{4}{3} \cdot \frac{9}{1} = \boxed{12}$

#8.) Rxn reversed, $\times \frac{1}{2}$

$$K' = \frac{1}{(K)^{1/2}} = \frac{1}{\sqrt{16}} = \frac{1}{4} = \boxed{0.25}$$

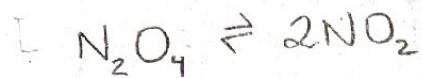
#10.) $Q = \frac{[\text{HI}]^2}{[\text{H}_2][\text{I}_2]} = \frac{3^2}{(0.3)^2} = \frac{9}{0.09} = \frac{1}{1 \times 10^{-2}} = \frac{1}{10^{-2}} = 10^2 = 100$

$K < Q$, shift left.

$$(3 \times 10^{-1})^2 = 9 \times 10^{-2} = 0.09$$

$$60 < 100$$

$$\#12.) [N_2O_4]_i = \frac{1.10 \text{ mol}}{2 \text{ L}} = 0.55 \text{ M}$$



$$\begin{array}{ccc} 0.55 & \emptyset & \\ -x & +2x & \\ \hline 0.55-x & 2x & \\ = 0.075 & & \end{array}$$

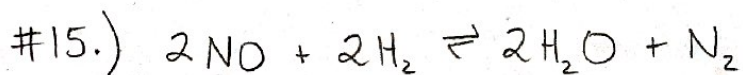
$$[NO_2]_{eq} = 2x = 2(0.475) = 0.95 \text{ M}$$

$$\text{mol} = 0.95 \text{ M} \times 2.0 \text{ L} = \boxed{1.9 \text{ mol}}$$

$$\Rightarrow x = 0.55 - 0.075$$

$$= 0.475$$

$$\#14.) K = \frac{[HI]^2}{[H_2][I_2]} = \frac{(0.6)^2}{(0.3)(0.4)} = \frac{0.36}{0.12} = \boxed{3}$$



$$\begin{array}{cccc} 0.1 & 0.05 & \emptyset & \emptyset \\ -2x & -2x & +2x & +x \\ \hline 0.1-2x & 0.05-2x & 2x & x \\ = 0.06 & & & \end{array}$$

$$\Rightarrow 0.1 - 0.06 = 2x$$

$$0.04 = 2x$$

$$x = 0.02$$

$$\#20.) \text{rxn reversed! } K' = \frac{1}{K} = \frac{1}{6.6 \times 10^{-5}} \approx \frac{1}{10 \times 10^{-5}} = \frac{1}{10^{-4}} = \boxed{1 \times 10^4} \text{ (1.5E4)}$$

\downarrow
 $10^1 \times 10^{-5}$