

Equilibrium Worksheet # 2

① E

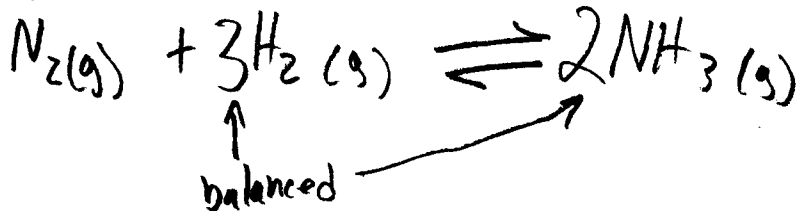
② D (B6C)

③ True

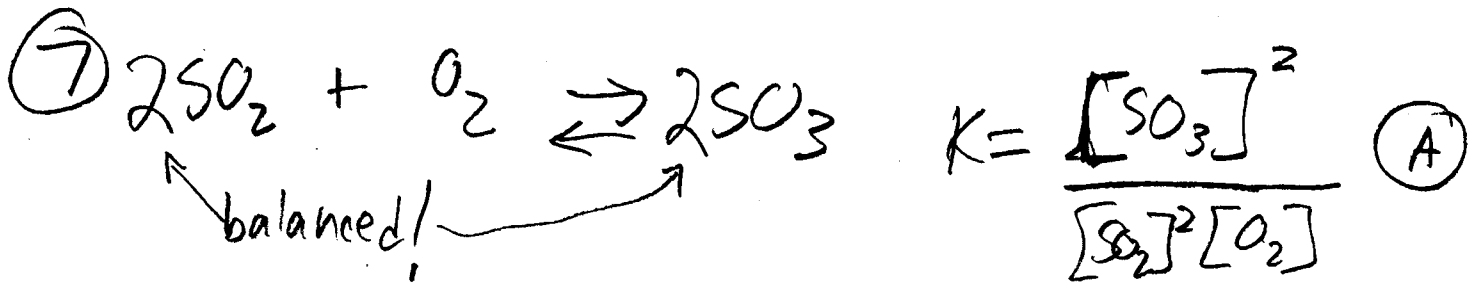
④ II & III are true E

⑤ $K = \frac{[\text{NO}_2]^2}{[\text{N}_2\text{O}_4]} = \frac{(1.41 \times 10^{-2})^2}{4.27 \times 10^{-2}} = \frac{1.9881 \times 10^{-4}}{4.27 \times 10^{-2}} = 4.66 \times 10^{-3}$
→ D

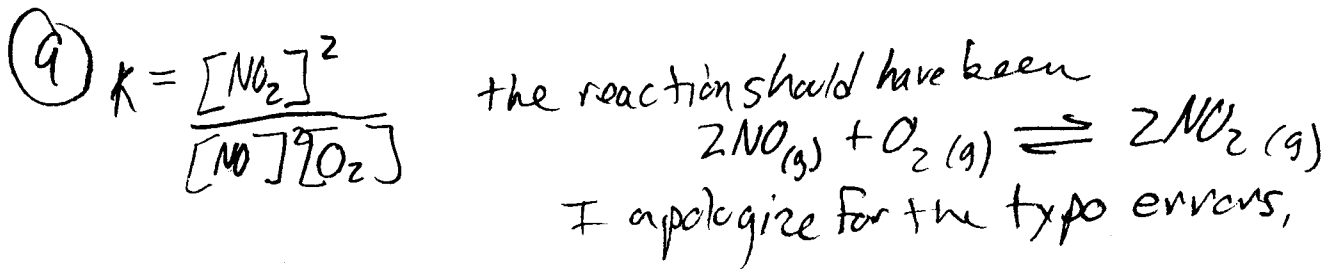
⑥ $\text{N}_2(\text{g}) = \text{gaseous nitrogen}$; $\text{H}_2(\text{g}) = \text{gaseous hydrogen}$; $\text{NH}_3(\text{g}) = \text{gaseous ammonia}$



$$K = \frac{[\text{NH}_3]^2}{[\text{N}_2][\text{H}_2]^3} \quad \text{④ D}$$



8) $K = \frac{[F]^2}{[F_2]} = \frac{(2 \times 10^{-4})^2}{1 \times 10^{-2}} = \frac{4 \times 10^{-8}}{1 \times 10^{-2}} = 4 \times \frac{10^{-8}}{10^{-2}} = 4 \times 10^{-6}$ (C)

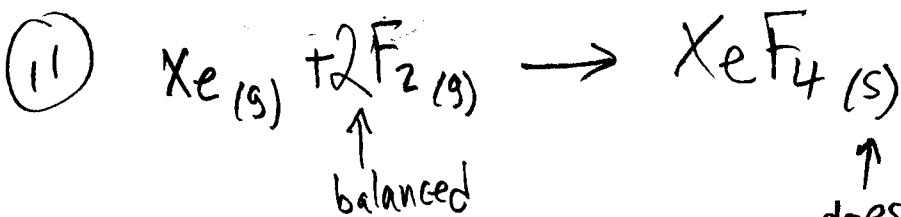


$K = \frac{(3 \times 10^{-3})^2}{(2 \times 10^{-3})(1 \times 10^{-2})} = \frac{9 \times 10^{-6}}{(4 \times 10^{-6})(1 \times 10^{-2})} = \frac{9 \times 10^{-6}}{4 \times 10^{-8}} = 2.25 \times 10^2 = 225$

$= 230$ (B) \uparrow 2 sig figs

10) A is a solid and B is a liquid; liquids & solids do not go into K_{eq} expression,

$K = [C][D]^4$ (D)



$K = \frac{1}{[Xe][F_2]^2}$ (C)

does not go into K_{eq} expression

12) D solids don't go into K_{eq} expression

13) $[A] = [B]$, and $[C] = [D] = 1.3 M$ $K = \frac{[C][D]}{[A][B]} = \frac{1.3^2}{x^2} = 2.6$

let $x = [A] = [B]$

14) $K = \frac{[CO_2][H_2]}{[H_2O][CO]} = \frac{(1.8)(1.4)}{(2.6)([CO])} = 3.88$

$[CO] = 2.5$ (B) (D)

$\frac{1.3^2}{2.6} = x^2$

$0.65 = x^2$

$0.806 M = x$