1A2

Final (Equilibrium) Concentration of H_2S = $\frac{(.0998\text{ mol} - 2(3.72\times10^{-2}\text{ mol}))}{1.25\text{ L}} \approx 2.03\times10^{-2}\frac{\text{mol}}{\text{L}}$

Final (Equilibrium) Conc. of H_2 = $\frac{2(3.72\times10^{-2}\text{ mol})}{1.25\text{ L}} = 5.95\times10^{-2}\frac{\text{mol}}{\text{L}}$

So,

i) $[H_2] = 5.95\times10^{-2}$ mol/L

ii) $[H_2S] = 2.03\times10^{-2}$ mol/L

c) $K_c = \frac{[H_2]^2[S_2]}{[H_2S]^2}$

$$K_c = \frac{\left(5.95\times10^{-2}\frac{\text{mol}}{\text{L}}\right)^2\left(\frac{3.72\times10^{-2}\text{ mol}}{1.25\text{ L}}\right)}{\left(2.03\times10^{-2}\frac{\text{mol}}{\text{L}}\right)^2} \approx \boxed{2.56\times10^{-1}\frac{\text{mol}}{\text{L}}}$$

d) $PV = nRT$

$P(1.25\text{ L}) = (3.72\times10^{-2}\text{ mol})(.0821\frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}})(483\text{ K})$

$\boxed{P \approx 1.18\text{ atm}}$

e) $K_c' = \frac{1}{\sqrt{K_c}} = \frac{1}{\sqrt{2.56\times10^{-1}\frac{\text{mol}}{\text{L}}}} \approx \boxed{1.98\frac{\sqrt{\text{L}}}{\sqrt{\text{mol}}}}$

GO ON TO THE NEXT PAGE.