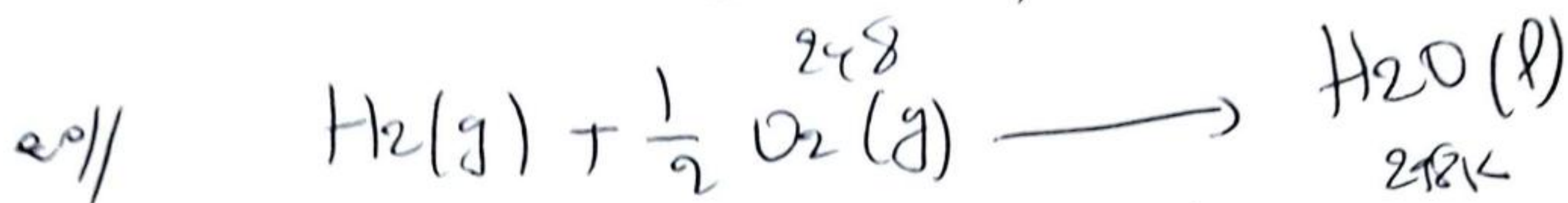


$$S^{\circ}_{298} \text{H}_2\text{O}(l) - S^{\circ}_{273}(\text{H}_2\text{O}(s)) = \frac{1440}{273} + \int_{273}^{298} \frac{(11,2 + 7,17 \cdot 10^{-3} T)}{T} dT$$

$$\Rightarrow S^{\circ}_{298} \text{H}_2\text{O}(l) = S^{\circ}_{273} \text{H}_2\text{O}(s) + \frac{1440}{273} + \int_{273}^{298} \dots$$

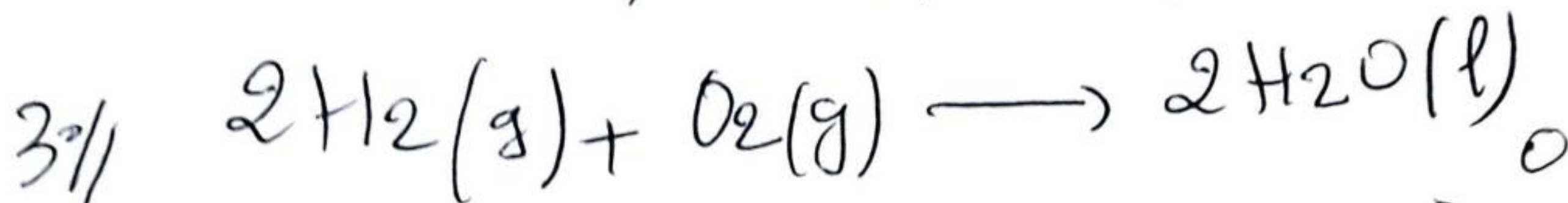
$$= 10,26 + \frac{1440}{273} + \int_{273}^{298} \dots$$

$$\Rightarrow S^{\circ}_{298} \text{H}_2\text{O}(l) = 16,17 \text{ cal/K/mol}$$



$$\Delta S^{\circ}_f = S^{\circ} \text{H}_2\text{O} - S^{\circ} \text{H}_2 - \frac{1}{2} S^{\circ} \text{O}_2$$

$$= 16,17 - 31,21 - \frac{1}{2} \times 49 = -39,00 \text{ cal/mol/K}$$



a// $\Delta S = 2 \Delta S^{\circ}_f \text{H}_2\text{O}(l) - \cancel{\Delta S^{\circ}_f \text{O}_2(g)} - \cancel{2 \Delta S^{\circ}_f \text{H}_2(g)}$

$$= 2 \times (-39) = -78 \text{ cal/K/mol}$$

b// $\Delta S = 2 S^{\circ} \text{H}_2\text{O} - S^{\circ} \text{O}_2 - 2 S^{\circ} \text{H}_2$

$$= 2(16,17) - 49 - 2 \times 31,21 = -78 \text{ cal/mol}$$

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