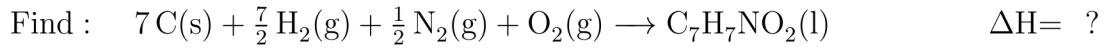
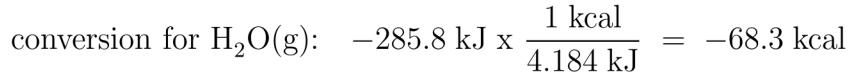
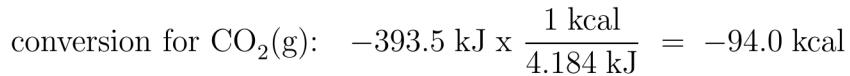


## HESS' LAW 6



Given :

- |     |  |                  |
|-----|--|------------------|
| (1) | C <sub>7</sub> H <sub>8</sub> (l) + HNO <sub>3</sub> (l) → C <sub>7</sub> H <sub>7</sub> NO <sub>2</sub> (l) + H <sub>2</sub> O(l) | ΔH= - 47.3 kcal  |
| (2) | C <sub>7</sub> H <sub>8</sub> (l) + 9 O <sub>2</sub> (g) → 7 CO <sub>2</sub> (g) + 4 H <sub>2</sub> O(l)                           | ΔH= - 943.1 kcal |
| (3) | NO <sub>2</sub> (g) + H <sub>2</sub> O(l) → HNO <sub>3</sub> (l) + $\frac{1}{2}$ H <sub>2</sub> (g)                                | ΔH= + 18.8 kcal  |
| (4) | C(g) + O <sub>2</sub> (g) → CO <sub>2</sub> (g)  | ΔH= - 94.0 kcal  |
| (5) | H <sub>2</sub> (g) + $\frac{1}{2}$ O <sub>2</sub> (g) → H <sub>2</sub> O(l)  | ΔH= - 68.3 kcal  |
| (6) | $\frac{1}{2}$ N <sub>2</sub> (g) + O <sub>2</sub> (g) → NO <sub>2</sub> (g)  | ΔH= + 7.9 kcal   |
- 

- |         |  |                  |
|---------|--|------------------|
| (1)     | C <sub>7</sub> H <sub>8</sub> (l) + HNO <sub>3</sub> (l) → C <sub>7</sub> H <sub>7</sub> NO <sub>2</sub> (l) + H <sub>2</sub> O(l) | ΔH= - 47.3 kcal  |
| (3)     | NO <sub>2</sub> (g) + H <sub>2</sub> O(l) → HNO <sub>3</sub> (l) + $\frac{1}{2}$ H <sub>2</sub> (g)                                | ΔH= + 18.8 kcal  |
| rev (2) | 7 CO <sub>2</sub> (g) + 4 H <sub>2</sub> O(l) → C <sub>7</sub> H <sub>8</sub> (l) + 9 O <sub>2</sub> (g)                           | ΔH= + 943.1 kcal |
| 7 x (4) | 7 C(g) + 7 O <sub>2</sub> (g) → 7 CO <sub>2</sub> (g)  | ΔH= - 658.0 kcal |
| 4 x (5) | 4 H <sub>2</sub> (g) + 2 O <sub>2</sub> (g) → 4 H <sub>2</sub> O(l)  | ΔH= - 273.2 kcal |
| (6)     | $\frac{1}{2}$ N <sub>2</sub> (g) + O <sub>2</sub> (g) → NO <sub>2</sub> (g)  | ΔH= + 7.9 kcal   |
- 

