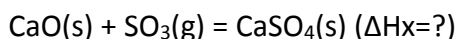


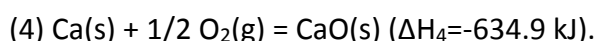
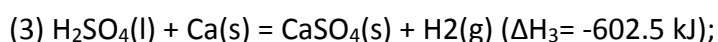
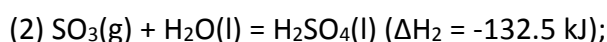
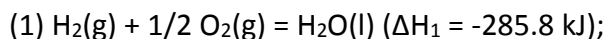
Answer on Question #67790 - Chemistry – Other

Task:

Calculate ΔH for:



From the following given data:



Solution:

According to **Hess' Law** is:

If a chemical equation can be written as the sum of several other chemical equations, the enthalpy change of the first chemical equation equals the sum of the enthalpy changes of the other chemical equations.

- 1) Analyze what must happen to each equation:
 - a) first equation \Rightarrow do not flip it
 - b) second equation \Rightarrow do not flip it (this put the SO_3 on the left-hand side, where we want it)
 - c) third equation \Rightarrow do not flip it (this put the CaSO_4 on the right-hand side, where we want it)
 - d) fourth equation \Rightarrow flip it (this put the CaO on the left-hand side, where we want it)

- 2) Then,

$$\Delta H_x = \Delta H_1 + \Delta H_2 + \Delta H_3 - \Delta H_4;$$

- 3) Add up ΔH values for our answer:

$$\Delta H_x = \Delta H_1 + \Delta H_2 + \Delta H_3 - \Delta H_4 = -285.8 \text{ kJ} + (-132.5 \text{ kJ}) + (-602.5 \text{ kJ}) - (-634.9 \text{ kJ}) = -385.9 \text{ kJ}.$$



Answer: $\Delta H_x = -385.9 \text{ kJ}.$