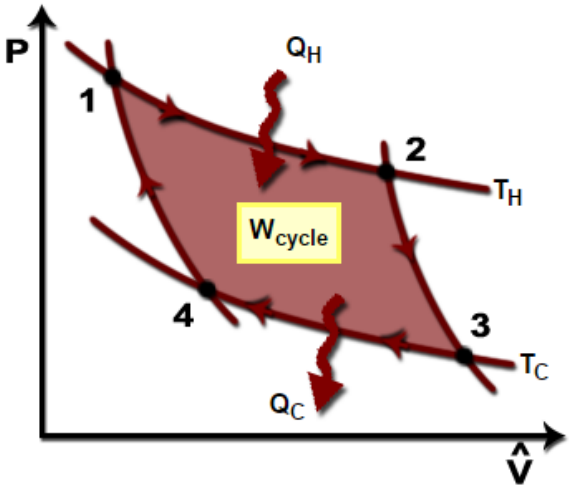
Question #61125 –Chemistry – Physical Chemistry

Question:

How will you calculate the net work done in a Carnot cycle?

Answer:



The Carnot Cycle

Step 1-2: **Reversible, Isothermal Expansion**

Step 2-3: **Reversible, Adiabatic Expansion**

Step 3-4: **Reversible, Isothermal Compression**

Step 4-1: **Reversible, Adiabatic Compression**

The **net** amount of work done **by** the **Carnot Power Cycle** operating in a closed system is the area **enclosed** by the **path 1-2-3-4-1**:

$$\frac{W_{b,cycle}}{m} = \int_1^2 P\, d\hat{V} + \int_2^3 P\, d\hat{V} + \int_3^4 P\, d\hat{V} + \int_4^1 P\, d\hat{V}$$