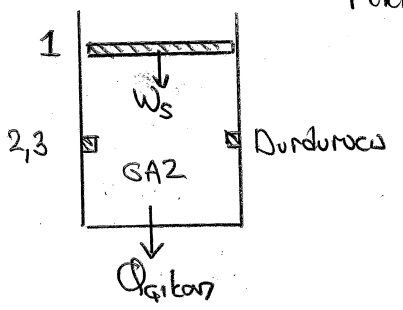
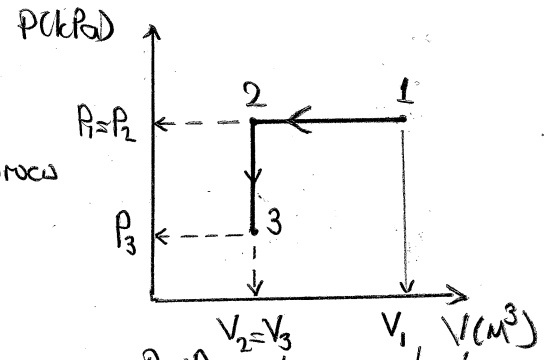
Sınır İşi Örnekleri:

P-v diyagramları:

Sınır İşleri:



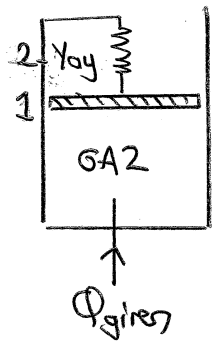


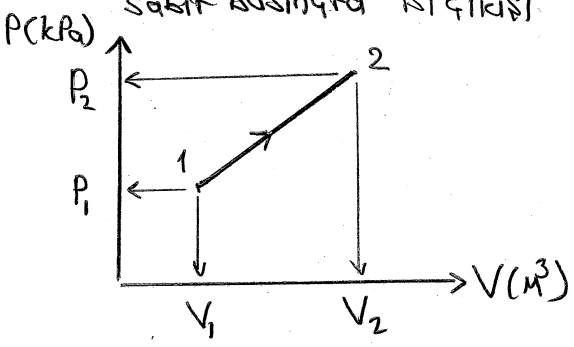
$P_2 < P_{dış}$ oluncaya kadar sabit basınçta ısı çıkışı

$$W_{13} = \int_1^2 P\,dV \ (J)$$
$$= P_1(V_2 - V_1) \ (J)$$

$P_1 = P_2 = P_{dış}$

$P_3 < P_{dış}$

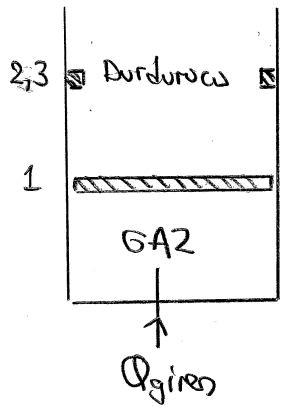


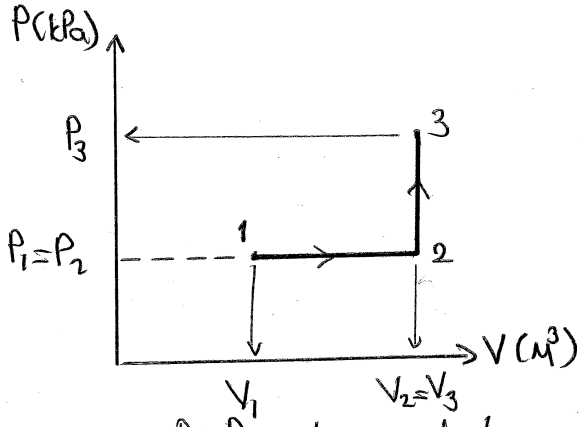


$$W_{12} = \frac{1}{2}(P_1 + P_2)(V_2 - V_1) \ (J)$$

$P_1 = P_{dış}$

$P_2 = P_{dış} + P_{yay}$



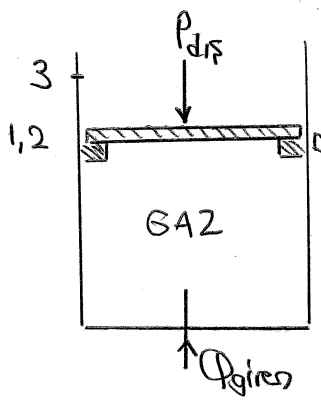


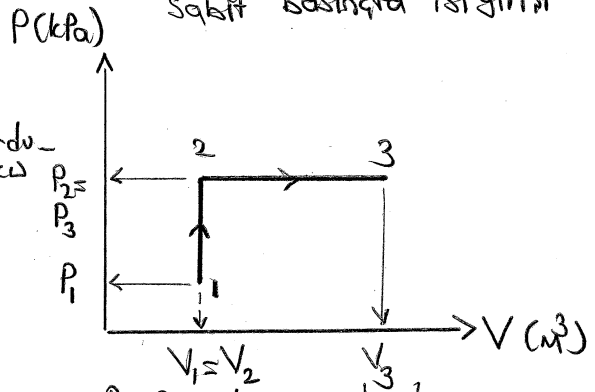
$P_2 > P_{dış}$ oluncaya kadar sabit basınçta ısı girişi

$$W_{13} = P_1(V_2 - V_1) \ (J)$$

$P_1 = P_2 = P_{dış}$

$P_3 > P_{dış}$



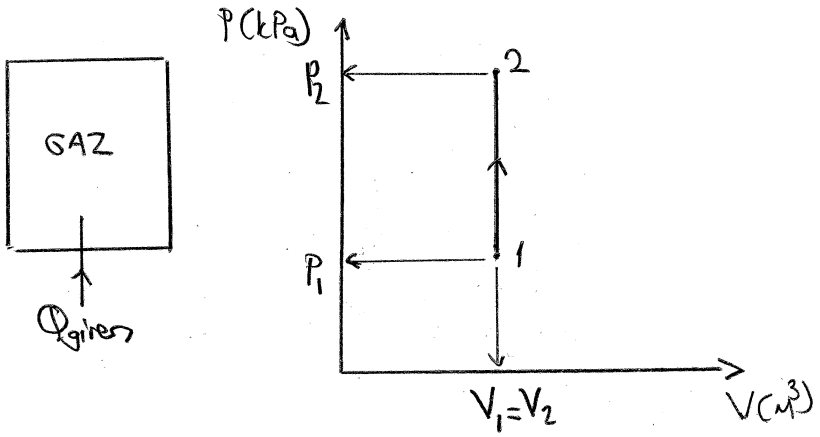


$P_2 = P_{dış}$ oluncaya kadar sabit hacimde ısı girişi

$$W_{13} = P_2(V_3 - V_2) \ (J)$$

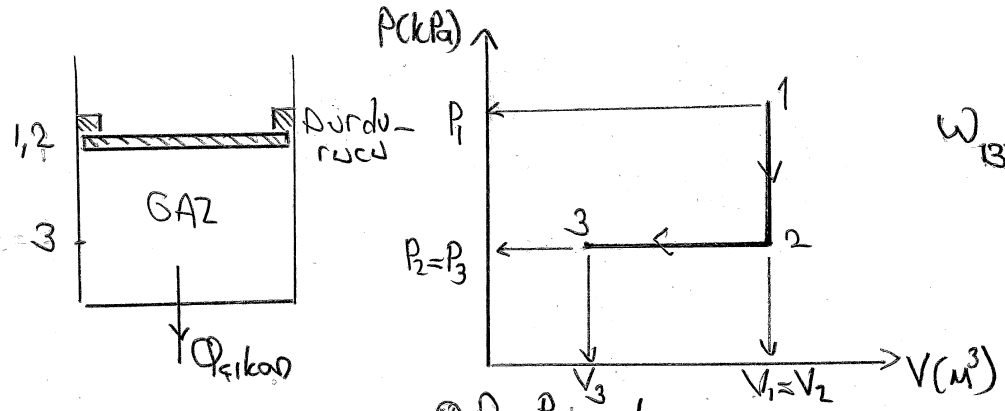
$P_1 < P_{dış}$

$P_2 = P_3 = P_{dış}$



$$W_{12}=\int_1^2 P\,dV = 0\ J$$

$P_{dış}=P_{atm}$ olabilir.



$$W_{13}=\int_2^3 P\,dV$$

$$=P_2(V_3-V_2)\ (J)$$

$P_1 > P_{dış}$

$P_2=P_3=P_{dış}$

⊛ $P_2=P_{dış}$ oluncaya kadar sabit hacimde ısı çıkışı