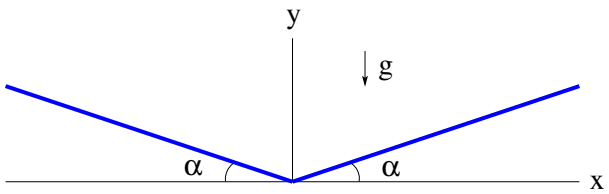
[mex259] Libration between inclines

A particles of mass m and energy $E = T + V$ is sliding back and forth without friction along the two inclines shown under the influence of a uniform gravitational field g.
(a) Construct the Lagrangian $L(x, \dot{x})$.
(b) Construct the Hamiltonian $H(x, p_x)$.
(c) Derive the Lagrange equation from L.
(d) Derive the canonical equations from H.
(e) Calculate the period of oscillation τ as a function E.



Solution: