HW#2 (March 13, 2017)

Water $(v_2=nv_1)$

Land (v_1)

O

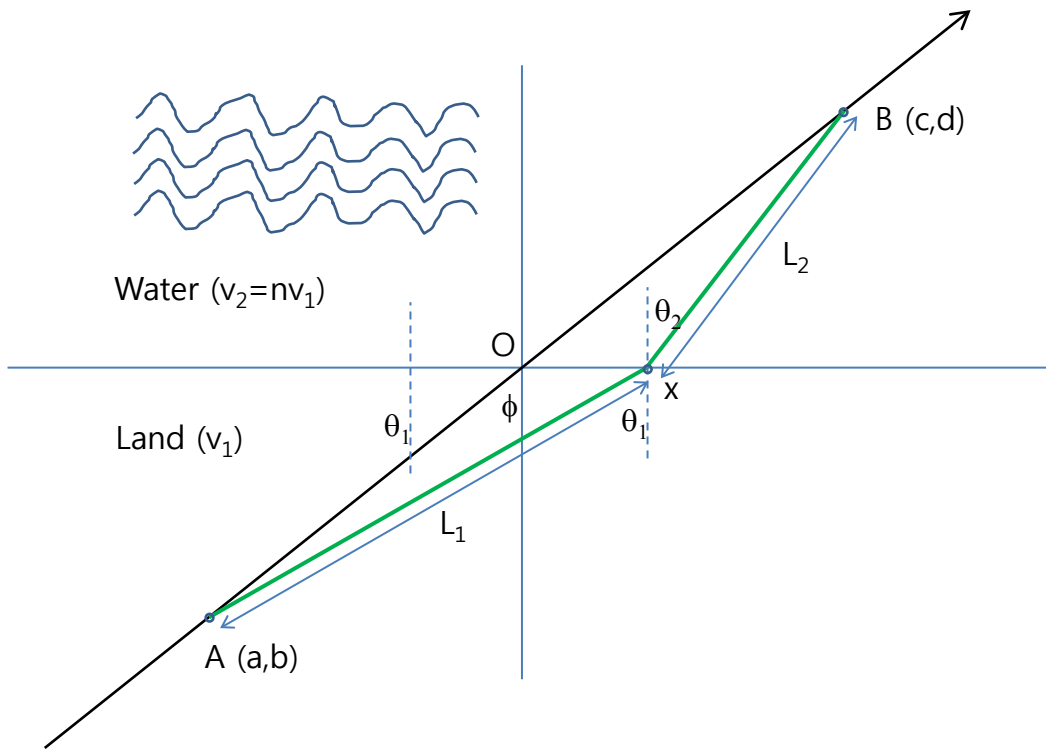θ_1

ϕ

θ_1

θ_2

L_1

L_2

A (a,b)

B (c,d)

X

Depending on θ_1, $t_1(L_1/v_1)$ and $t_2(L_2/nv_1)$ vary.
1. Plot T $(T=t_1+t_2)$ as a function of X for n=0.7 and 0.5.
   Present the used program, too.
2. From the plot (T vs. x), discuss the least time principle.
   (Hint: Express it as $\sin\theta_1$.)
3. Prove it (x values) analytically by solving differential equation.
   (Hint: dT/dx=0 for minima (least time). You can use Mathmatica)