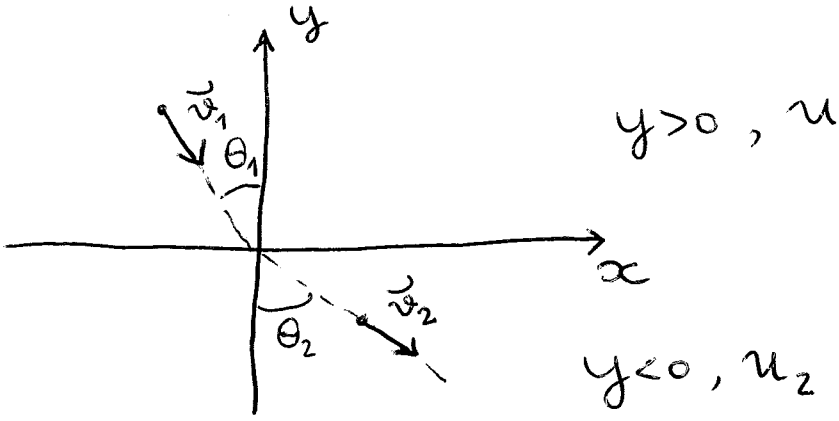
HW #2

1. Goldstein Ch. 2, Ex. 10
2. Goldstein Ch. 2, Ex. 12
3. Goldstein Ch. 2, Ex. 16
4. Goldstein Ch. 2, Ex. 18
5. A particle with mass m & velocity $\vec{v}_1$ crosses the border between the $y>0$ region, where its potential energy is $u_1 = \text{const}$, and the $y<0$ region, where its potential energy becomes $u_2 = \text{const}$ $\neq u_1$ in general

2D



Find $|\vec{v}_2|$ in terms of $|\vec{v}_1|$ & use it to find $\dfrac{\sin\theta_1}{\sin\theta_2}$.