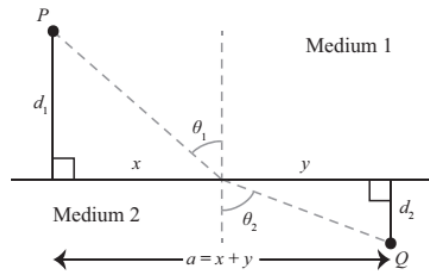


Lesson 18 Lagrange Multipliers



Snell's law of refraction

$$\frac{\sin \theta_1}{v_1} = \frac{\sin \theta_2}{v_2}$$

Use Lagrange multipliers to derive Snell's law of refraction

We want to minimize

$$T(x, y) = \frac{\sqrt{d_1^2 + x^2}}{v_1} + \frac{\sqrt{d_2^2 + y^2}}{v_2} \quad \text{subject to the}$$

constraint $g(x, y) = x + y = a$