



observed path

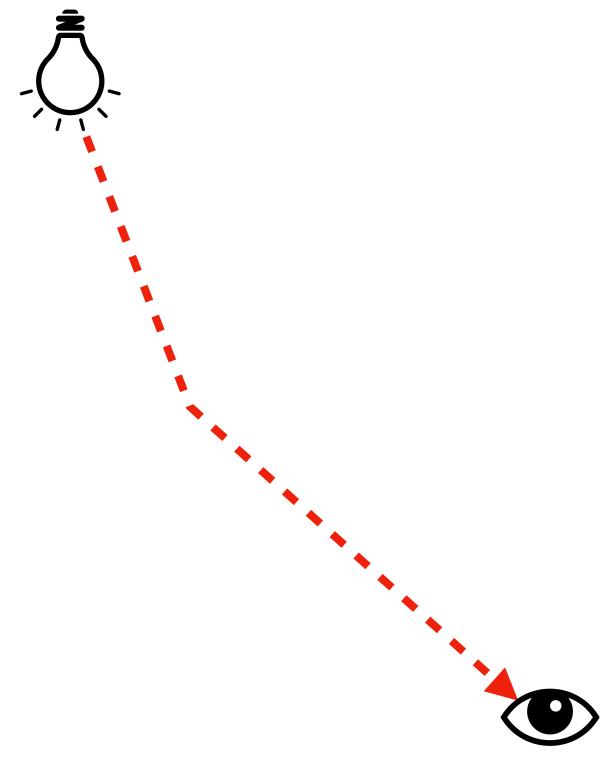
instantaneous rule

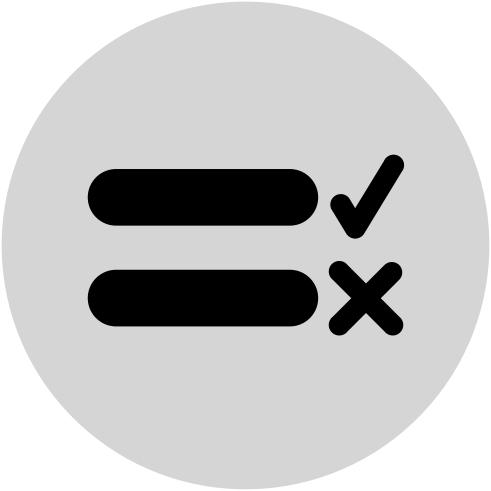
global principle

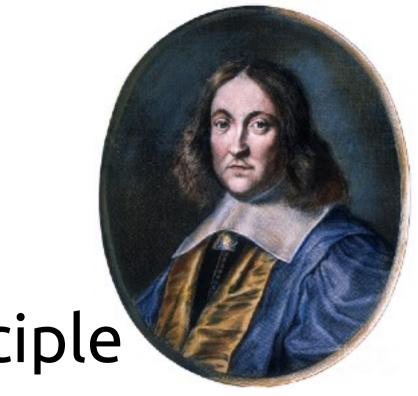
 $\sin(\theta_1)$

 $\sin(\theta_2)$







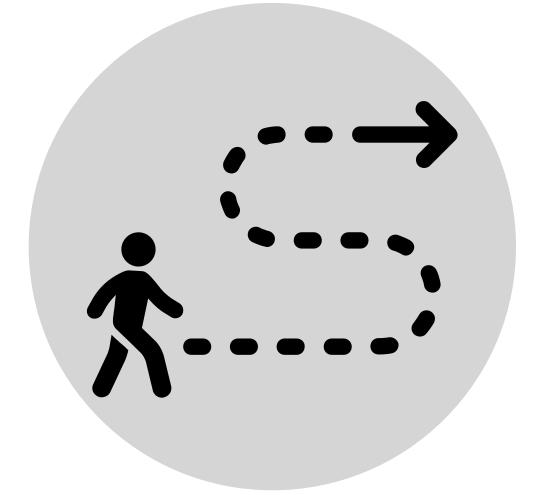


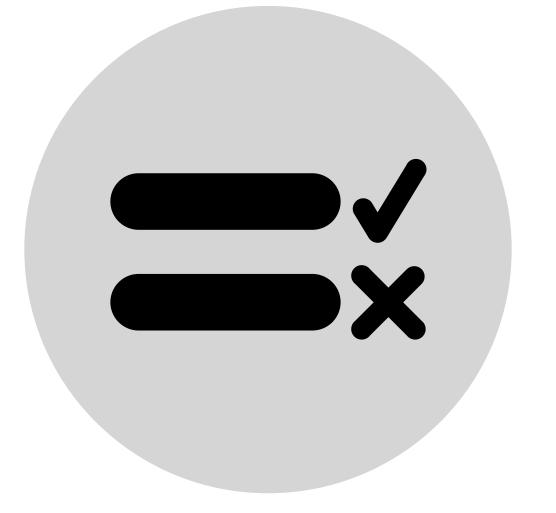
Fermat's principle

observed path

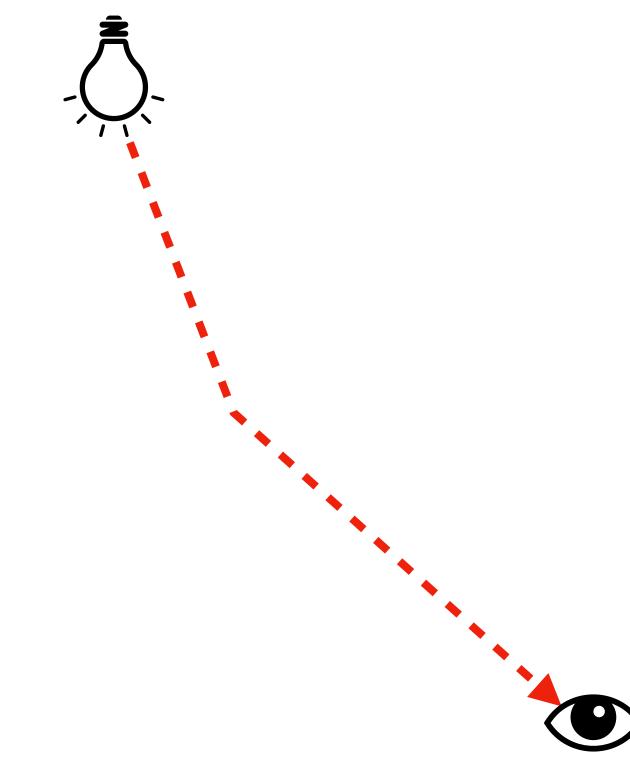
instantaneous rule

global principle









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

min time

O

Fermat's principle

observed path



global principle

