

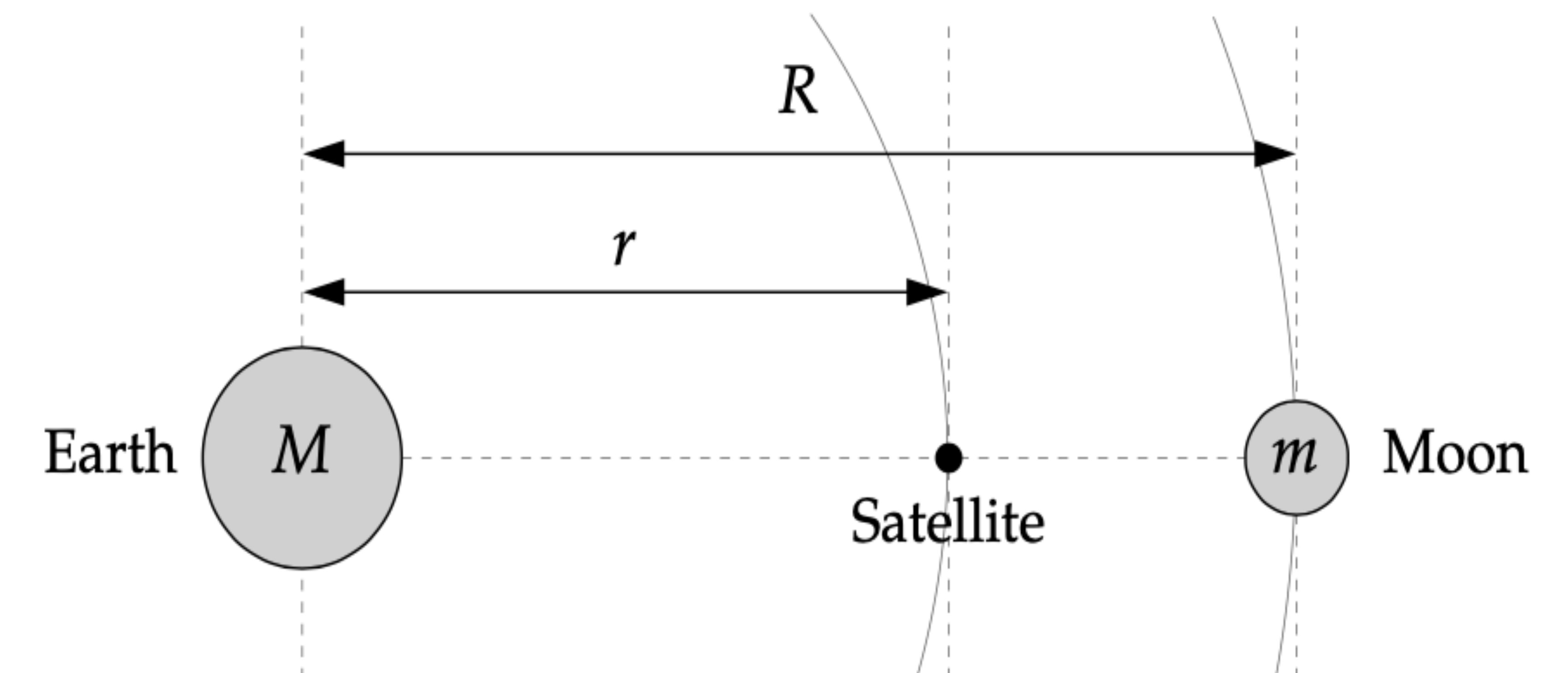
# The Lagrange Point

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## Introduction

Sattelite moving around the earth, there is a magical point when it is exactly between the Earth and moon, this point is reffered to as Lagrange point. At this point, sattelite and moon will be perfectly synchornous to each other.



## Mathematical formulation

$$\frac{GM}{r^2} - \frac{Gm}{(R-r)^2} = \omega^2 r \quad (1)$$

## Newton Raphson Method

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)} \quad (2)$$

- Numerical techqie to estimate the root of complex equation
- Starts with an initial guess
- Function should be continuous

## Experimental Results

Estimating r (Lagrange point) using Newton method , with

$$G = 6.674 * 10^{-11} m^3 kg^{-1} s^{-2}$$

$$M = 5.974 * 10^{24} kgm = 7.348 * 10^{22} kg$$

$$R = 3.844 * 10^8 m. \omega = 2.662 * 10^{-6} s^{-1}$$

