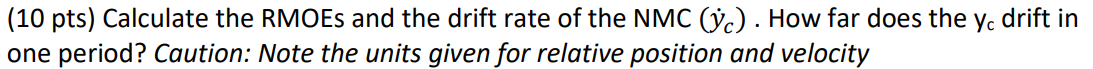
# Given

A math equations and formulas

Description automatically generated

# Find and Answers



x\_c = 1.999034903973655 -km

y\_c = 4.000592525135646 - km

ydot\_c = -2.186592472996024e-04 = m/s

y\_cr = -18.840460105779634 – km/period

C = 0.999704203275250 - km

M = 90.055312298920228 - degrees

z\_max = 1 - km

delM = 90 – degrees

Further graphs are attached to this file

# Assumptions

* R2BEOM, no perturbations
* HCW
  + R2BEOM, no perturbations
  + Target and Chase satellites are near each other with similar velocities.
  + Target is in a circular orbit.
* No change in relative x distance throughout time.

# Units

All units are explained with the answers.

# Analysis

From this problem we can learn about general rules about MROEs. Such as if initial zdot = 0 and there is a component in the z direction that that option is Zmax or Zmin. As with most initial conditions, the initial velocity relative to the target has compounding affects on the future orbit, due to the large initial negative ydot (-0.2188 m/s) this compounded into about 18 km offset after 1 day or orbital period.