Project Report

Numerical Computing

110675

Instructor : Sanjay Kumar

Members:-

Safiullah Rehmani(12413)

Shaheer Shakeel (12452)

Shahmeer Khan(12113)

Introduction:

Our mission is to destroy the asteroid with missile
That's more typical of the size asteroid that might unexpectedly threaten Earth, these astronomers said. That's because the larger asteroids are easier to see, and their orbits are better known.
Many educators and scientists have contributed ideas and content directly and indirectly to this revision. Their assistance is gratefully appreciated.
The goal of the Rockets Educator Guide is to excite young minds. Among your students are future leaders, planners, builders, explorers, settlers, and interplanetary pilots! This guide will help you lay the groundwork for their future in space.
An asteroid is a minor planet of the inner Solar System. Historically, these terms have been applied to any astronomical object orbiting the Sun that did not resolve into a disc in a telescope and was not observed to have characteristics of an active come.

Libraries imported in projects

- import NumPy as np
- from matplotlib import pyplot as plt
- import matplotlib. Pyplot as plt
- from math import pi
- from scipy.misc import derivative
- import copy
- from fractions import Fraction

Methodology:

We use Newton Raphson method to find the point of intersection And we also make linear line graph, Elliptical graph, graph of earth, 2D and 3D representation of rocket launch other find distance Between Rocket platform and strike location and weight of rocket.

We also do some research work and then we find out that Newton raphson method is best for this project.

Calculating the kinetic energy of the asteroid just before it strikes the earth. This is equal to the impact energy. For example, consider an asteroid that is one kilometer in diameter and weighs 1.4 billion tones (M = 1.4×1012 kilograms), and is traveling at 20 kilometers per second (V = 20,000 m/s).

Formulas:

Function: F(x) = 91.00425*(x**2)-1666050*x+7500426025

Derivative of Function: F'(x) = ((364017*x)/2000)-1666050

Using Newton's Formula: x0= x0 + (F(x) / F'(x))

Putting value in equation of y:

y=1.7321x-17321

y=1.7321 (7928.502721)

17321 y=-3494.50704

Iteration	F(x)	F'(x)	Root
1	91.00425*(9153)**2-1666050*(9153)+7500426025	(364017*(9153))/2000-1666050	-979989.9992
2	91.00425*(-979989.99920949)**2-1666050*(-979989.99920949)+7500426025	(364017*(-979989.99920949))/2000-1666050	-485418.8463
3	91.00425*(485418.846296599)**2-1666050*(485418.846296599)+7500426025	(364017*(485418.846296599)/2000-1666050	-238133.9632
4	91.00425*(-238133.963202414)**2-1666050*(-238133.963202414)+7500426025	(364017*(-238133.963202414))/2000-1666050	-114492.9084
5	91.00425*(-114492.908380586)**2-1666050*(-114492.908380586)+7500426025	(364017*(-114492.908380586))/2000-1666050	-52675.15431
6	91.00425*(-52675.1543114331)**2-1666050*(-52675.1543114331)+7500426025	(364017*(-52675.1543114331))/2000-1666050	-21771.82309
7	91.00425*(-21771.8230876607)**2-1666050*(-21771.8230876607)+7500426025	(364017*(-21771.8230876607))/2000-1666050	-6331.242136

8	91.00425*(-6331.24213589986)**2-1666050*(-6331.24213589986)+7500426025	(364017*(-6331.24213589986)/2000-1666050	1366.934586
9	91.00425*(1366.93458606036)**2-1666050*(1366.93458606036)+7500426025	(364017*(1366.93458606036)/2000-1666050	5172.23577
10	91.00425*(17943.1696087865)**2-1666050*(17943.1696087865)+7500426025	(364017*(17943.1696087865)/2000-1666050	6990.705102
11	91.00425*(6990.70510214525)**2-1666050*(6990.70510214525)+7500426025	(364017*(6990.70510214525)/2000-1666050	7755.117642
12	91.00425*(7755.11764211459)**2-1666050*(7755.11764211459)+7500426025	(364017*(7755.11764211459)/2000-1666050	7964.018211
13	91.00425*(7964.01821109953)**2-1666050*(7964.01821109953)+7500426025	(364017*(7964.01821109953)/2000-1666050	7982.35912
14	91.00425*(7982.359120104)**2-1666050*(7982.359120104)+7500426025	(364017*(7982.359120104)/2000-1666050	7982.502712
15	91.00425*(7982.50271231211)**2-1666050*(7982.50271231211)+7500426025	(364017*(7982.50271231211)/2000-1666050	7982.502721

Iteration	F(x)	F'(x)	Root
1	91.00425*(9154)**2-1666050*(9154)+7500426025	(364017*(9154))/2000-1666050	2245879.03
2	91.00425*(2245879.0295269)**2-1666050*(2245879.0295269)+7500426025	(364017*(2245879.0295269))/2000-1666050	1127516.668
3	91.00425*(1127516.66807)**2-1666050*(1127516.66807)+7500426025	(364017*(1127516.66807))/2000-1666050	568335.794
4	91.00425*(568335.793988463)**2-1666050*(568335.793988463)+7500426025	(364017*(568335.793988463))/2000-1666050	288745.9702
5	91.00425*(288745.970195583)**2-1666050*(288745.970195583)+7500426025	(364017*(288745.970195583))/2000-1666050	148952.2848
6	91.00425*(148952.284797967)**2-1666050*(148952.284797967)+7500426025	(364017*(148952.284797967))/2000-1666050	79057.89503
7	91.00425*(79057.8950268626)**2-1666050*(79057.8950268626)+7500426025	(364017*(79057.8950268626))/2000-1666050	44115.60539
8	91.00425*(44115.6053944662)**2-1666050*(44115.6053944662)+7500426025	(364017*(44115.6053944662))/2000-1666050	26654.26627
9	91.00425*(26654.266266898)**2-1666050*(26654.266266898)+7500426025	(364017*(26654.266266898))/2000-1666050	17943.16961
10	91.00425*(17943.1696087865)**2-1666050*(17943.1696087865)+7500426025	(364017*(17943.1696087865))/2000-1666050	13626.4616
11	91.00425*(13626.4615969482)**2-1666050*(13626.4615969482)+7500426025	(364017*(13626.4615969482))/2000-1666050	11543.41513
12	91.00425*(11543.4151344394)**2-1666050*(11543.4151344394)+7500426025	(364017*(11543.4151344394))/2000-1666050	10635.55158
13	91.00425*(10635.5515847583)**2-1666050*(10635.5515847583)+7500426025	(364017*(10635.5515847583))/2000-1666050	10357.44933
14	91.00425*(10357.4493286016)**2-1666050*(10357.4493286016)+7500426025	(364017*(10357.4493286016))/2000-1666050	10325.32452
15	91.00425*(10325.324517745)**2-1666050*(10325.324517745)+7500426025	(364017*(10325.324517745))/2000-1666050	10324.8841
16	91.00425*(10324.8841046184)**2-1666050*(10324.8841046184)+7500426025	(364017*(10324.8841046184))/2000-1666050	10324.88402

Conclusion:

The conclusion is we hit asteroid with missile we achieve this goal we also find point of intersection between the path of missile and the orbit of the asteroid with that intersection point we successfully be able to destroy the asteroid with missile.