F74046022 陳冠仁 資訊108乙班

Prob1.

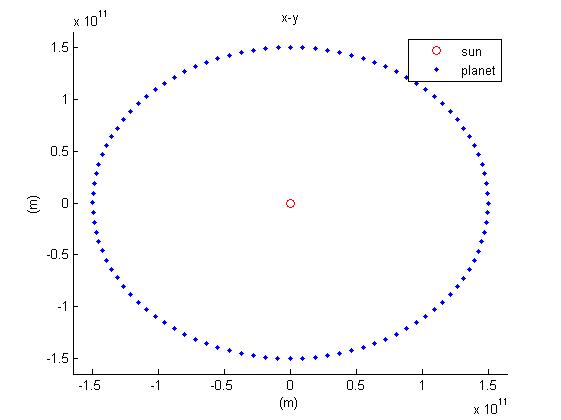
1. G = 6.67384\*10^-11

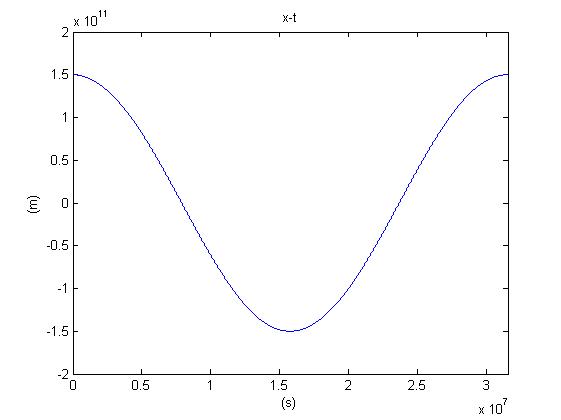
Ms = 2\*10^30

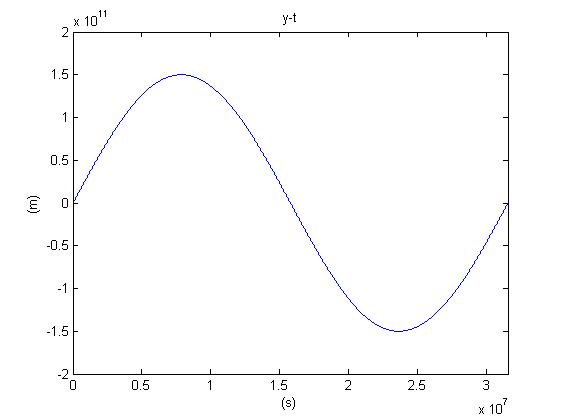
x”(t) = -G\*Ms/(x(t)^2+y(t)^2)^(1.5)\*x(t);

y”(t) = -G\*Ms/(x(t)^2+y(t)^2)^(1.5)\*y(t);

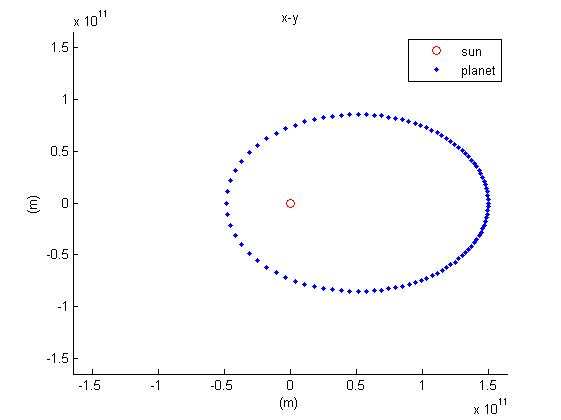
1. Vc = 29830.275448 m/s

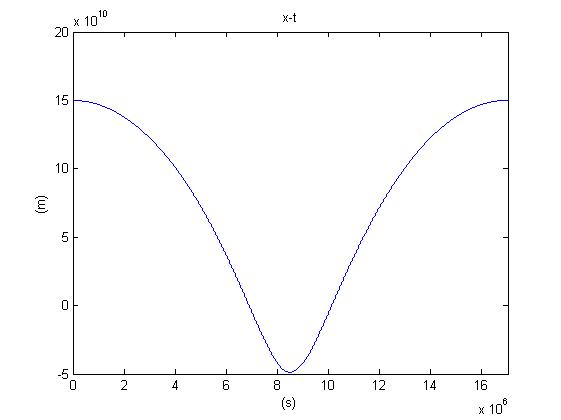


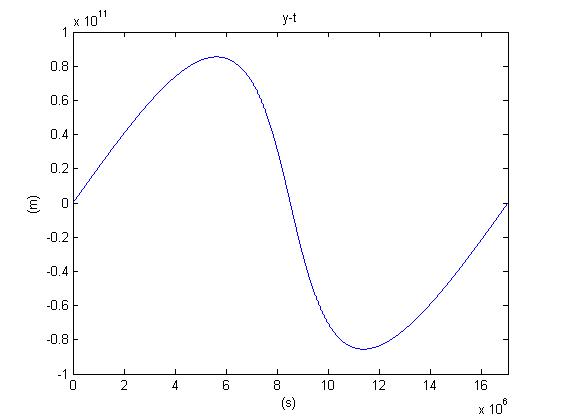




period = 31594940 s





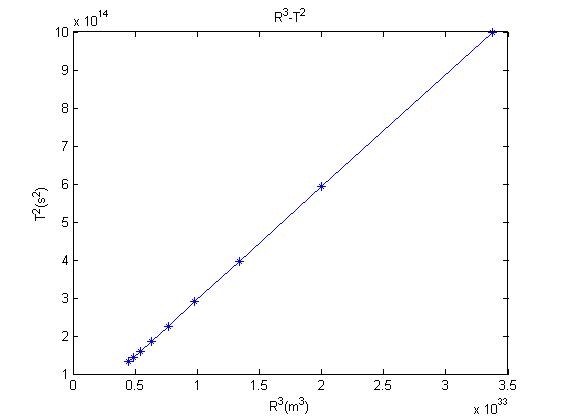


1. period = 17027540 s

semi-major axis = 9.933841E+10 m



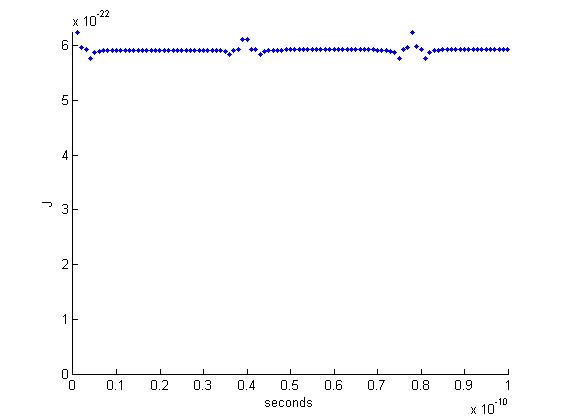
|  |  |  |
| --- | --- | --- |
| k | period(s) | semi-major axis(m) |
| 0.2 | 11514220 | 7.653212E+10 |
| 0.3 | 11969300 | 7.853508E+10 |
| 0.4 | 12658780 | 8.152258E+10 |
| 0.5 | 13647740 | 8.571501E+10 |
| 0.6 | 15043620 | 9.146409E+10 |
| 0.7 | 17027540 | 9.933841E+10 |
| 0.8 | 19920900 | 1.102948E+11 |
| 0.9 | 24338660 | 1.260512E+11 |
| 1.0 | 31594940 | 1.500009E+11 |



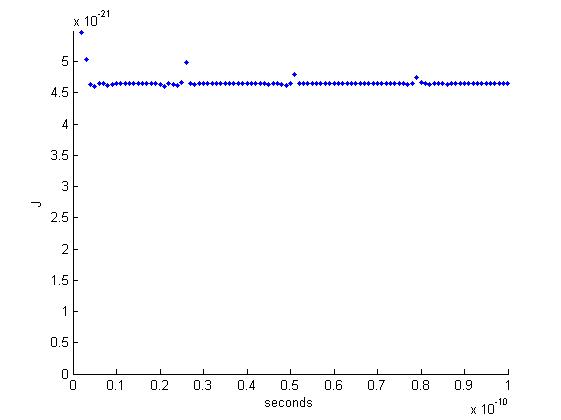
Prob2.

1. gas

time step = 10^-15 (s)



1. time step = 10^-15 (s)



1. time step = 10^-15 (s)

