Print your name:
Sara Liu

Today's date:
10/25/19

Class period:
7
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1. Earth and Moon in orbit.

2. Moon

    #define M 7.349e+22 // kg
    #define R 1.7374e+6 // m
    #define V 1023.157  // m/s

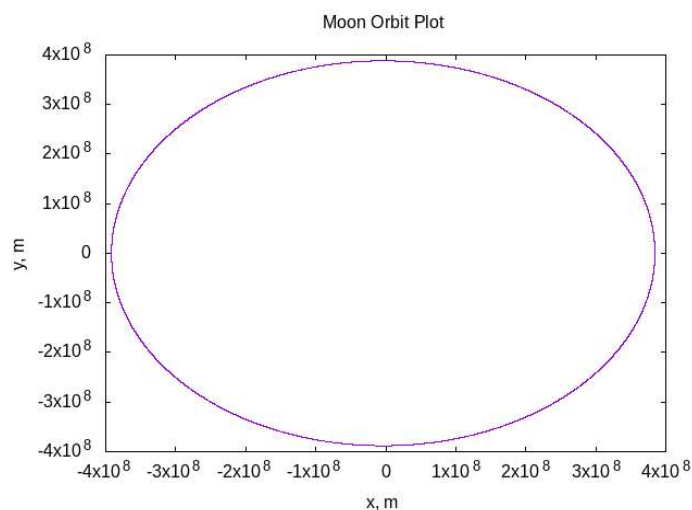    double r = 3.844e8 ; // distance from Earth

3. Speed, okay to use uniform circular motion formula.

4. Mass does not matter until including spaceship too.

5. Radius to visualize and later if spaceship crashes.

6. Initialize x = r and vy = V, first quadrant.

7. Check it is correct.

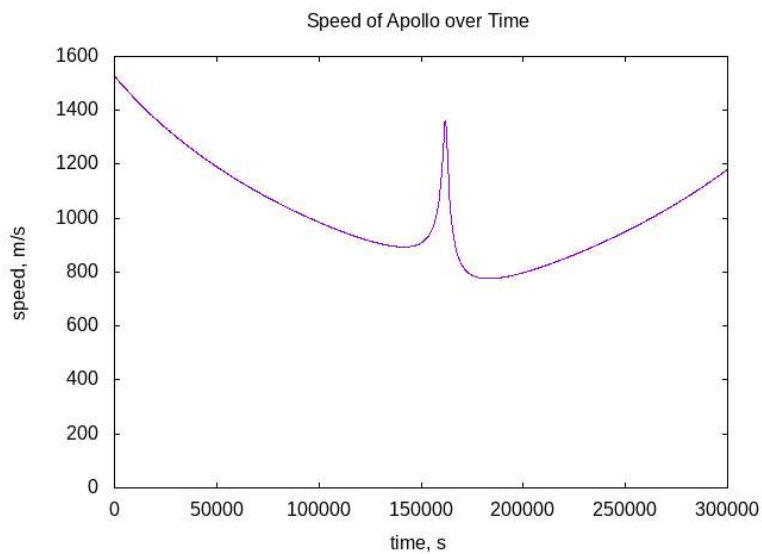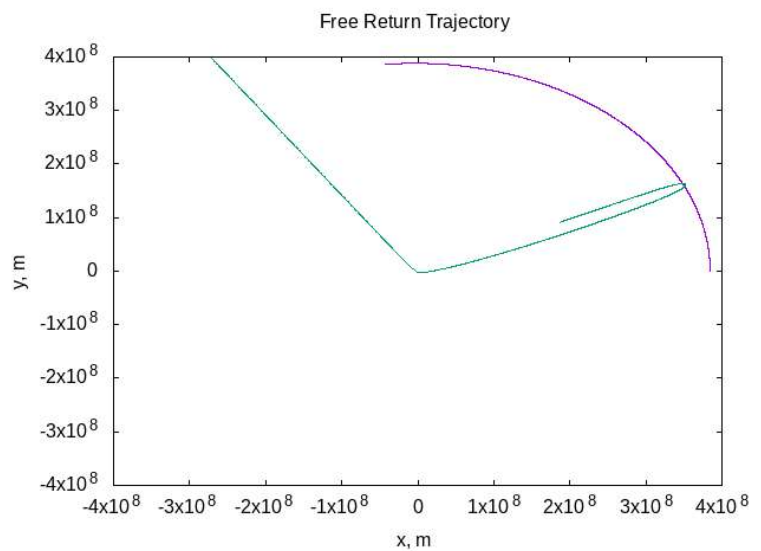

Moon Orbit Plot

8. Only then, add vehicle, must change loop code now.

9. Apollo

```
t[0]  = 96302.0       ; // 26 h, 45 m, 2 s
r    = RE + 202751774.4 ;
vmag  = 1527.048       ;
```

10. Find THETA for a free return trajectory.  Plot the Earth, the Moon, and the Apollo spacecraft free return. Plot the speed of Apollo over time.  Indicate when the interaction with the moon takes place, by hand is fine.


Free Return Trajectory


Speed of Apollo over Time

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END