Group FORTRAN Program 8

Due Tuesday November 19, 2013

The Planet Lander

This is a group program.

Write a FORTRAN program to:

- The user initializes the program by entering the mass of the planet, mass of the craft, initial mass of fuel, fuel burn efficiency (amount of thrust/unit mass of fuel), initial height of craft above planet, and the initial velocity of the craft. This information will be entered from the keyboard.
- The height and velocity of the craft will only be in one direction orthogonal to a point on the planet.
- There are no other component forces acting upon the craft.
- Assume the planet and the craft are point masses.
- There are no other masses present.
- The program will prompt the user for amount of fuel to burn along with the burn time in seconds, both real numbers.
- Appropriate calculations will be performed and the new craft vertical height above the planet and velocity will be displayed.
- A safe landing is when the craft contacts the surface of the planet within +/- 5m/s.
- Use the masses of the objects to calculate the force of attraction and acceleration.
- The craft could have the ability to achieve escape velocity.
- Include the program name (not gxp8.for), program number, and group member names at the top of the program.
- Name the program GxP8.FOR where x is the group number.
- Comment your program.
- Include your names, group number, the class, and program name and number on the device used to submit the program.
- Do not use exit’s, goto’s etc.