AP Physics Formula Test

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_ Score \_\_\_\_

Directions: Give the correct formula for the following in the space provided. Include the name or value for any constant used in the formula unless it has already been named in a previous answer. Include any other information requested.

1. Final Velocity that includes acceleration, time, and initial velocity.
2. Final position that includes initial position, acceleration, velocity, and time. Also, list the SI units for each variable.  
   , x in meters, a in m/s2, t in seconds, v in m/s.
3. Final velocity that includes acceleration, but does not include time.
4. Net Force that includes acceleration.
5. Weight using gravitational acceleration.
6. Force of Friction.
7. List the three ways to calculate centripetal acceleration.
8. Centripetal Force.  
   , or any of the above (#7) for ac.
9. Momentum. Also give the SI units for momentum.  
   , SI unit is (kg m/s) or Ns
10. Change in momentum that includes impulse.
11. Conservation Law of momentum in a two-object system.
12. Kinetic energy of a moving particle.
13. Gravitational potential energy of any object.
14. Work done on an object that includes: a) no angle and b) an angle.
15. Power that includes time. List SI units for each variable.  
    , W and E in J and t in seconds, P is in Watts.
16. Power that includes distance.
17. Power that includes velocity.  
     or
18. Angular position  that includes angular acceleration, initial angular velocity and time.
19. Final angular velocity that includes angular acceleration, initial angular velocity and time.
20. Position of an object oscillating in SHM that includes amplitude, frequency, cosine and time.
21. Torque acting on an object using force, moment arm and angle. Give the SI units for torque.  
    , unit is Nm
22. Net torque causing an angular acceleration using unbalanced force.
23. Net torque using angular acceleration and moment of inertia.
24. Rotational kinetic energy.
25. Angular momentum using moment of inertia and angular speed.
26. The change in angular momentum using an unbalanced torque.
27. Conservation Law of angular momentum due to changes in the moment of inertia.
28. Force of a spring that includes displacement of the spring.
29. Potential energy stored in a spring.
30. Period for a mass on an oscillating spring.
31. Period for a pendulum.
32. Universal Law of Gravitation (also called the gravitational force formula). List the SI units for each of the variables.  
    , m in kg, r in m, G in N
33. Gravitational acceleration of an object (called the test mass) in a gravitational field using the distance between masses. This acceleration is also the measurement of the gravitational field strength.
34. Gravitational potential energy that includes distance between two masses.
35. Speed of a Satellite.
36. Period of a satellite.
37. Conservation Law of Mechanical Energy using gravitational potential, spring potential, liner kinetic and rotational kinetic energies, and use all the variables that make them up.
38. Work done by a non-conservative force (friction) using all the variables that make up the mechanical energies.
39. Angular velocity using the period of a circle.
40. The speed of a wave that applies to every kind of wave.
41. The speed of a wave in a stretched string using the tension of the string.
42. The standing wave frequency in a vibrating string.
43. The standing wave frequency in a vibrating air column open at both ends.
44. The standing wave frequency in a vibrating air column closed at one end and open at the other end.
45. Electrical current that includes charge.
46. Electrical resistance that includes resistivity.
47. Ohm’s Law formula.
48. Electrical power using current and voltage.
49. Electrical power using current and resistance.
50. Electrical power using voltage and resistance.
51. Equivalent resistance of resistors arranged in parallel.
52. Equivalent resistance of resistors arranged in series.
53. Coulomb’s Law.