Name _____ Hour _____

## Bucket Days on Everything for points ☺

You will have 5 questions each for 2 pts, worth a total of 10 points on your final.

**Unit I) Introductory Material**

1. How many centimeters are in one inch? 2.54
2. How many meters are in one mile? 1609
3. How many centimeters are in 1 meter? 100
4. How many feet are in 1 meter? 3.28

**Unit II) Motion in One-Dimension**

5. What is Δx and what unit is it measured in? horz. distance, m
6. What is Δy and what unit is it measured in? vert. distance, m
7. What is the unit for velocity? m/s
8. What is the unit for acceleration? $m/s^2$
9. What unit is Δt typically measured in? sec
10. What quantity does the slope of a **distance vs. time** graph give you? m/s - speed/velocity
11. What quantity does the slope of a **velocity vs. time** graph give you? $m/s^2$ - acceleration
12. What does a horizontal line on a **distance vs. time** graph mean? not moving
13. What does a horizontal line on a **velocity vs. time** graph mean? moving at constant velocity
14. What does the area under a velocity vs. time graph give you? distance $(\frac{m}{s} \cdot s = m)$
15. When can we use $v = \Delta x / \Delta t$? constant speed
16. When is the acceleration of an object equal to -9.8 $m/s^2$? falling objects
17. If you throw an object straight up, what is the speed at the top of its flight? 0
18. If you throw an object up and it takes 4 seconds to reach the top, how long is it in the air? 8 sec

**Unit III : Vectors**

19. Something that has only magnitude is called a vector scalar
20. Something that has both magnitude and direction is called a vector
21. Give an example of a quantity that is a scalar. (m, Δt, v, a, f, etc) m, Δt
22. Give an example of a quantity that is a vector. (m, Δt, v, a, f, etc) v, a, f, D
23. What is the sum of two or more vectors called? resultant

**Unit IV : Projectile Motion**

24. What does $a_y$ equal? $-9.8\ m/s^2$
25. What is $v_x$ ? horz velocity
26. What is $v_{iy}$? initial vertical velocity
27. If you drop a bullet and shoot a bullet horizontally from the same height, which one will hit first if there is no air resistance? same time!
28. If an object is shot **horizontally**, what does $v_{iy}$ equal? 0
29. An object that once in the air can't control its own motions is called a projectile
30. What happens to the velocity of a projectile in the x direction throughout its flight?
31. What happens to the Vy as the **Δy increases** during the flight of an angled projectile? decreases - slows down
32. What happens to the Vy as the **Δy decreases** during the flight of an angled projectile? increase - speeds up
33. What is $v_{fy}$ ? final vertical velocity
34. What unit is $v_{iy}$ measured in? m/s

**Unit V: Newton's Laws and Forces**

35. What is a force? push or a pull
36. What unit do we typically use to measure force? N
37. What is Newton's 1st Law? inertia
38. What is Newton's 2nd Law? F=m·a
39. What is Newton's 3rd Law? action/reaction
40. Which one of Newton's Laws says that for every action there is an equal and opposite reaction? 3rd
41. Which one of Newton's Laws says F=ma? 2nd
42. Which one of Newton's Laws is this? 1st
    a. *An object at rest remains at rest and an object in motion remains in motion unless acted upon by an outside force?*

Name _____ Hour _____

43. The property of matter to resist changes in motion is the definition for inertia
44. If an object is in equilibrium, what is the sum of all of the forces acting on it? 0
45. A 400-N woman sits on the floor. What force does the floor exert on her? 400 N
46. Which has more mass, a kilogram of feathers or a kilogram of iron? same
47. What is mass and what unit is it in? amount of matter, kg
48. What is weight and what unit do we measure it in? gravity pulling on mass, N
49. What variable do you get when you divide force by acceleration? m
50. What **UNIT** do you get when you divide force by acceleration? kg
51. When your weight down is equal to the force of air resistance up, this is called terminal velocity
52. What is the acceleration of an object equal to when it reaches terminal velocity? 0
53. What is a g force? how many x your weight you are experiencing
54. 1 g is equal to your mass multiplied by what? -9.8
55. What does it mean if you are feeling 3 g's of force? 3x heavier

**Unit VI: Work and Energy**

56. What is the unit for work? J
57. How many Watts are in a **kilowatt**? 1000
58. How many Watts are in one **horsepower**? 746 J/sec, watt, hp
59. What is one of the three units we use for power?
60. What unit for power will come out in the equation P = W / Δt? watt
61. The energy of position is known as PE
62. The energy of motion is known as KE
63. What is the **kinetic energy** of a cat that is sitting still and is 2 meters off the ground? 0
64. The conservation of energy states that the total energy remains constant
65. What unit is energy measured in? J
66. What quantity do we measure in Watts? Power
67. A baseball is dropped off a roof. As it falls, what happens to its potential energy? ↓ (less height)
68. A baseball is dropped off a roof. As it falls, what happens to its kinetic energy? ↑ (more v)

**Unit VII: Momentum and Collisions**

69. What is the variable (the letter) for momentum? P
70. What is the unit for momentum? kg·m/s
71. What is the momentum of a school bus parked outside? 0
72. What is the equation for momentum? p=m·v
73. When you catch a water balloon, what variable do you control as you cradle it? Δt
74. What two variables does momentum depend on? mass, velocity
75. The conservation of momentum states the total momentum remains constant during a collision.
76. What type of collision has occurred when two objects collide and bounce apart? elastic
77. What type of collision has occurred when two objects collide and stick together? inelastic

**Unit VIII: Circular Motion and Gravity**

78. What does "T" stand for in circular motion equations? Period - time to make 1 revolution
79. What does "T" stand for in the pendulum equation? Period - time to go forward & back once
80. What is the variable for period? T
81. What unit is the period measured in? sec
82. Centripetal force is the force required to keep an object moving in a circle.
83. Which one is just inertia: centrifugal force or centripetal force?
84. What happens to the acceleration due to gravity as you move further away from the earth's surface? decreases
85. What is the difference between g and Fg? g= acceleration, Fg= force
86. The Universal Law of Gravitation (gravitational force) depends on what 2 things? mass, distance
87. In order for an object to stay in a consistent orbit, what two forces must be equal? Fg = Fc
88. In the pendulum equation, what is the letter L? length
89. When you increase the length of a pendulum, how does it affect the period? increases
90. When you increase the mass of a pendulum, how does it affect the period? it doesn't
91. An object moving at constant speed in a circle is accelerating because... it is changing direction
92. Newton believed every object attracts every other object.