Chapter II Review Sheet **RS II**

Definitions: (Mention standard units where appropriate.)

Arago Effect (25)
Average Acceleration (28b)
Average Velocity (16)
Change in X (23)
Chord (28)
Constant (15)
Deceleration (27)
Derivative (29b)
Differentiation (29b, 29d)
Dimensionless (19)
Displacement (15,16,23, 25, 30)
Frequency (20)
Friction (24)
Instantaneous Acceleration (28b)
Instantaneous Velocity (28)
Integral (29b)
Integration (15, 15R, 28, 29b, 30b)
Operation (29b)
Reciprocal
Relative Uncertainty (20)
Starting from rest
Sudden change, Gradual change
Tangent line (29)
Uniform Acceleration (9, 16)
Variable (15)
Velocity (25)

Discoveries

1. 25 m/sec = ____mph (13) 60 mph = ____ ft/sec (27)
2. How can changes in displacement be determined from a speed-time graph? (15, 15R, 16, 27, 28)
3. How can speed be determined from a displacement-time graph? (23, 28) _____
4. If a forward velocity is positive, then a backward velocity must be _____tive. (25)
   --Does the same principle apply to displacements and accelerations? ____ (25)
5. What kind of motion is given to any freely-falling object by the earth's gravity? (16) _____ at __ ___
6. How does free-fall distance depend on falling time if the object starts from rest? (16, 17, 22)
7. What kind of motion does an object have when it is sliding to a stop on a uniform level surface?
8. List the steps for solving any problem involving motion along a straight path. (27, 27b, 28b)
   a. b.
   c. d.
9. How does skidding distance depend on initial speed if the deceleration is constant? (27)
10. Does friction depend on sliding speed? (24) ___
11. How do we cause an object to accelerate? (23, 24,) _____ -What do you feel when your body is accelerated? (25b) _____ Can you also recognize *velocity* by feel? (30) _____
12. How does an automobile's maximum forward acceleration depend on its speed? (27b, 29b, 30b)
13. How are the integration and differentiation operations related? (29b) ____
14. What are the basic principles of relative motion? a. Displacements: $D_{ab} + D_{bc} =$ ____
    b. Velocities: ___ + ___ = ___ c. Accelerations: ___ + ___ = ____ (25)
15. Do we know of any exceptions to those relative motion principles? ____
16. When is average velocity equal to the arithmetic mean of initial and final velocities? (28)
17. If "A" is proportional to "B^c", and the exponent "c" is a constant, then:
    a. The graph of A vs. ___ is a straight line through the ____. (16, 17, 18R,)
    b. The relation can be described by an equation with the form **A =** ___. (17, 18R)
    c. The proportionality constant's units in that equation will be the units of A _____ed by the ___ power of the ___ unit. (17, 18R) d. A_2/A_1 = _____. (19)
    e. If B is doubled, then A is multiplied by ___ and the quotient *A/B* is _____ed.
    f. The fractional or percentage change in A is approximately ___ times the corresponding fractional change in B if the changes are _____ in size. (20, 22)
18. How does the period of a pendulum depend on its length? (18)
19. What other variable does the period of a pendulum depend on slightly? -Sketch the graph. (9b, 18b)
20. How are gas volume and pressure related? (18, 18R)
21. How does rope strength depend upon thickness? (22)
22. Formula for area of a circle:_____ -For circumference: _____ (21) -How can the speed of an orbiting object be calculated from its period and orbit radius? _____ (25)
23. Given an old value and a new value, how do we calculate the percent change? (Shortcut, p. 10R)
24. Given the percentage change in x, calculate the ratio of the new x value to the old one. (19, 22)
25. How can the relative uncertainty of a product, quotient or square root be estimated? (20, 21) _____
26. How can the absolute uncertainty of a sum or difference be estimated? (RS I) ____
27. When should an uncertainty be in percentage form, and when is a "range" more appropriate? (20, 22)