Chapter 11 &12: Motion and Force

Motion, pgs. 252-258

1. Reference Frame = _____

_____

2. Speed = _____

_____

Formula   **Speed = ▬▬▬▬▬** ⊘
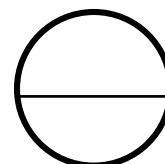
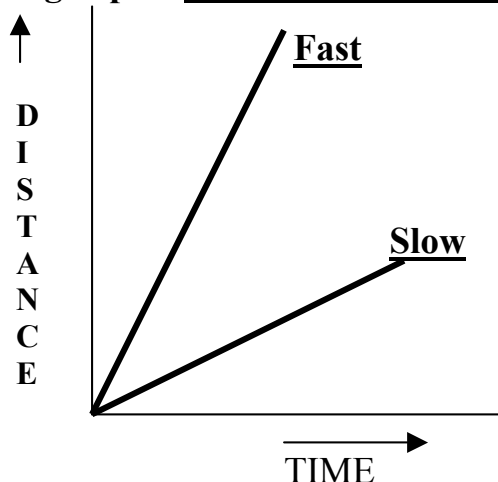**Units**   m/hr = <u>meters</u>   or   cm/sec = <u>centimeters</u>
                           hour   seconds

3. Constant Speed = _____

_____

4. Average Speed = _____

Fast

D
I
S   **Slow**
T
A
N
C
E

TIME

Trials	Distance	Time	Speed
1			
2			
3			
Average			

My walking speed is:

5. Velocity = _____

_____

6. Momentum = _____

_____

Formula   **momentum =**   Mo
Units   **kg m/sec   =**
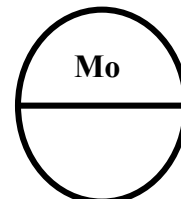
7. Law of Conservation of Momentum = _____

_____

8. Acceleration = _____

_____

_____

Positive Acceleration – _____

Negative Acceleration – _____

Acceleration is indicated _____

Formula   Acceleration = _____

Units   m/sec/sec or m/sec^2

Distance-Time Graph

TIME

Speed-Time Graph

TIME
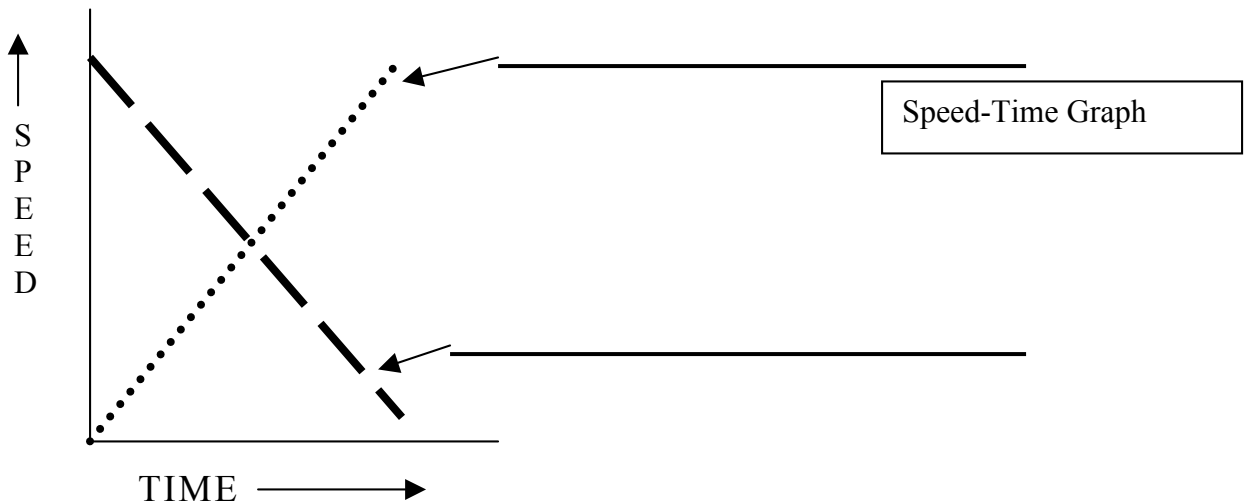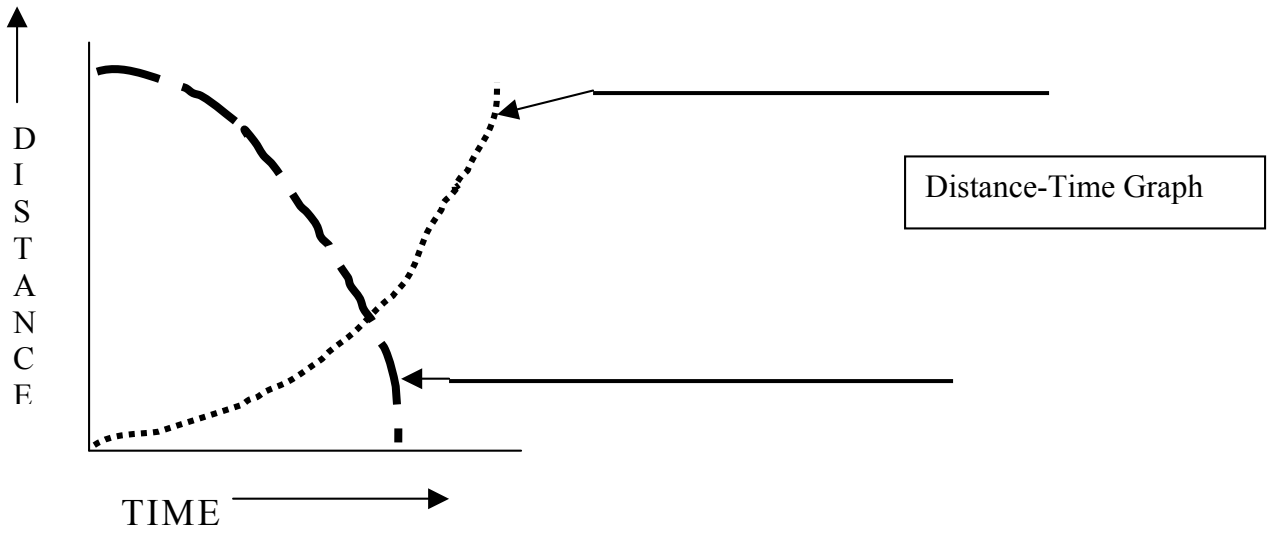
9.   Force = _____

10.   Balanced Forces = _____

_____

--·--·--► ◄————————   ◄--·--·-- ————————►

11. Unbalanced Forces = _____

_____

--·--·--► ◄————————   ◄--·--·-- ————————►

12. Friction = _____

_____

_____

The amount of friction depends on:

1. _____

2. _____

Types of friction:

1. Sliding friction = _____

_____

2. Rolling friction = _____

_____

Air Resistance = _____

_____

Amount of air resistance depends _____

_____

If there is no air resistance, _____

_____

13. Gravity= _____

_____

The larger the mass, _____

The greater the distance, _____

14. Newton's First Law (The Law of Inertia)= _____

_____

_____

Inertia = _____

_____

_____

Projectile Motion = _____

_____

15. Centripetal Force = _____

_____

Acceleration can be a _____

Sun's gravity exerts a centripetal force _____

16. Newton's Second Law of Motion= _____

_____

Formula   Force   =

Units   kg m/sec^2 = kg   x   m/sec^2

Force units =   kg m/sec^2 = N or Newtons

$$\frac{F}{M \times A}$$
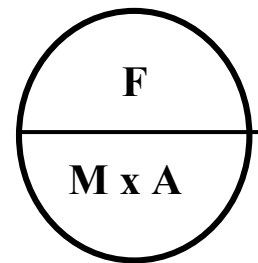
17. Free Fall = _____

_____

18. Gravitational Acceleration = _____

All objects fall _____

19. Weight = _____

    Weight is a _____

        Formula   gravitational force or weight =
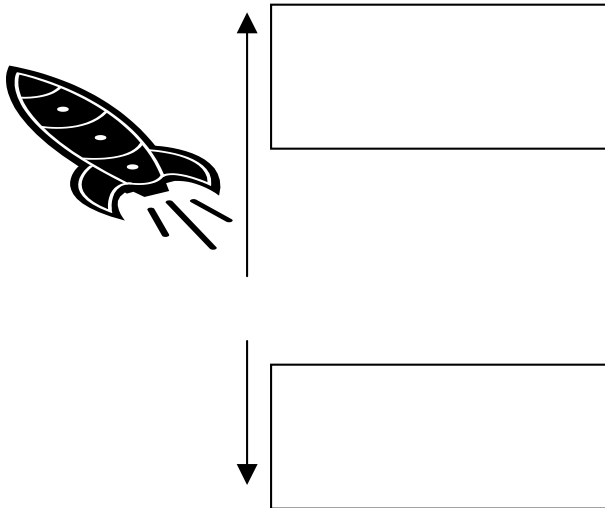
        Units   Newtons (N) =   kg   x m/sec^2

    <u>Weight and mass are not the same thing:</u>

        <u>Weight is the</u> _____

        _____

        <u>Mass is the</u> _____

        _____

20. Terminal Velocity = _____

_____

21. Newton's Third Law = _____

_____

CIM BENCHMARKS

Describe & explain the effects of multiple forces acting on an object.

Understand and apply the relationship F=ma in situation in which one force acts on an object.

Recognize that equal and opposite forces occur when one object exerts a force on another.

Describe the forces acting on an object, based on the motion of that object.

Describe the relationship of mass and distance to gravitational force.