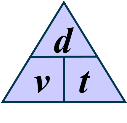
**CHAPTERS 11 & 12: MOTION & FORCES Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **Newton’s First Law of Motion:**
   * An object at rest will remain at \_\_\_\_\_\_\_\_\_ and an object in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will continue moving at a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unless acted on by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. **MOTION:**
   * Is your desk moving?
   * We need a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (nonmoving point from which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is measured)
   * **Motion** – change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in relation to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ point

**Draw and label picture:**

* **Problem:** You are a passenger in a car stopped at a stop sign. Out of the corner of your eye, you notice a tree on the side of the road begin to move forward.
  + **What is the problem? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **SPEED & VELOCITY:**
   * **Speed:**
     + **\_\_\_\_\_\_\_\_\_\_** of motion
     + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** traveled per unit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

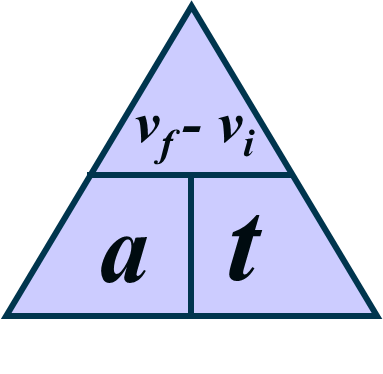
**SPEED = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* **Instantaneous Speed-** speed at a given \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Average Speed:**

**AVERAGE SPEED = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* **Problem:**
  + A storm is 10 km away and is moving at a speed of 60 km/h. Should you be worried?
    - It depends on the storm’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!
* **Velocity:**
  + Speed in a given \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Direction can change even when the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is constant!

1. **ACCELERATION:**

* **Acceleration:**
  + The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of change of velocity
  + Change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***a: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***vf: final velocity a = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***vi: initial velocity***

***t: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

* **Positive Acceleration: “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”**
* **Negative Acceleration: “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”**

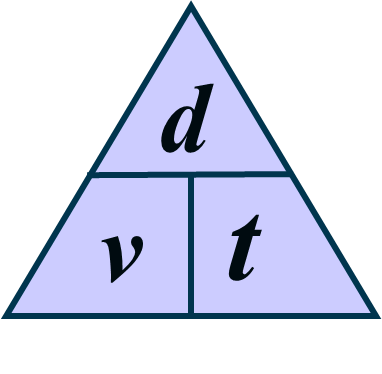
1. **CALCULATIONS:**
2. Your neighbor skates at a speed of 4 m/s. You can skate 100 m in 20 s. Who skates faster?

GIVEN: WORK:

d=

t=

v=

****

1. A roller coaster starts down a hill at 10 m/s. Three seconds later, its speed is 32 m/s. What is the roller coaster’s acceleration?

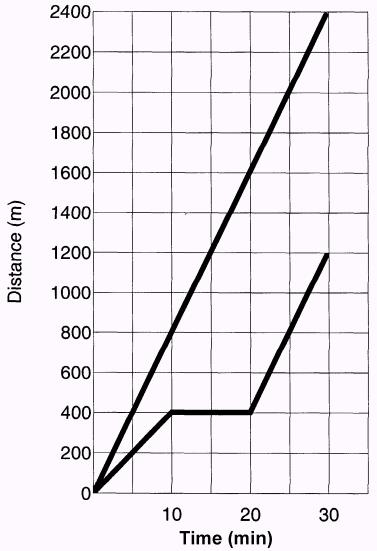
GIVEN: WORK:

1. Sound travels 330 m/s. If a lightning bolt strikes the ground 1 km away from you, how long will it take for you to hear it?

GIVEN: WORK:

1. How long will it take a car traveling 30 m/s to come to a stop if its acceleration is -3 m/s2?

GIVEN: WORK:

1. **GRAPHING MOTION:**

* **Distance-Time Graph:**
* Slope = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Steeper slope = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Straight line = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Flat line = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Who started out faster? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Who had constant speed? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Describe B from 10-20 min. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Find their average speeds.
  + **A=**
  + **B=**



* Acceleration is indicated by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on a distance-time graph.
* Changing slope = changing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



* **Speed-Time Graph**
  + Slope = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - +ve = speeds up
    - -ve = slows down
  + Straight line = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Flat line = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(constant velocity)

-Specify the time period when the object was….

* Slowing down: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Speeding up: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Moving at a constant speed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Not moving: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_