Physics 11

**Section 2.2: Speed and Velocity**

Kinematics is the study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“1D” means the motion is along a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Distance vs. Displacement** (Review from last day):

|  |  |  |  |
| --- | --- | --- | --- |
|  | Vector or Scalar? | Symbol | Description |
| Distance |  |  | How far something traveled ***along the path it took.*** |
| Displacement |  |  | * Change in position.
* Straight arrow from start to finish.
 |

**Speed vs. Velocity:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Vector or Scalar? | Symbol  | Formula |
| Speed |  |  |  |
| Velocity |  |  |  |

**\***The formulas above are for *average* speed and velocity. They don’t usually work for *instantaneous* speed/velocity, unless the speed/velocity is constant.

where \_\_\_\_\_\_\_\_\_\_ means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example:** How long does it take a car traveling at 45 km/h to travel 100 m?

**Example:**

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *runs* 10 m right and then turns around and *runs* 5 m left. The total time of travel is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ s.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_starts at the same position, but *walks* only 5 m right. The total time of travel is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ s.

 Diagram:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Distance |  |  |
| Displacement |  |  |
| Average Speed |  |  |
| Average Velocity |  |  |