Everyday words ≠ precise def's in Physics

displacement \neq \text{almost same thing in everyday usage}

de relative \quad \text{velocity}

\overrightarrow{r}_i \quad \text{position vector at time } t_i

\overrightarrow{\Delta r} = \overrightarrow{r}_{n+1} - \overrightarrow{r}_n \equiv \text{displacement}

\overrightarrow{\text{velocity}} \quad \overrightarrow{v}_\text{avg} \equiv \frac{\overrightarrow{\Delta r}}{\Delta t}

\overrightarrow{\text{speed}} \equiv \frac{\text{distance}}{\text{time}}
§1.5 - Acceleration

\[ \vec{a} = \frac{\Delta \vec{v}}{\Delta t} \]

\( \vec{a} \rightarrow 0 \) if \( \vec{v} \) changes magnitude \( \frac{1}{2} \) or direction

§1.6 - Motion Diagrams

Introduced last class

2 things to add:

(1) (From Chapt 3)

Vector: magnitude and direction.

not where it is

\[ \text{Same vector} \]
§ 1.7 - Words To Symbols

Nothing To Add = "N T A"

§ 1.8. Problem Solving (cf pg 24)

1. Model

2. Visualise
   - Picture
   - Diagram
   - Graph

3. Guess

4. Solve
   If numeric, put in number last.

5. Assess
Example: Barrie 90 km North
of TO

Mathematician: TO \rightarrow Barrie

@ 100 km/hr

Physicist: TO \rightarrow Barrie

@ 120 km/hr

How long is physicist in Barrie when mathematician shows up?

1. Model: people's cars, particles
   Run 400 straight

2. Visualise:

Guess: 10 minutes

Solution: \( d = v_p t_p = v_m t_m \)

\[ t_m - t_p = 0.18 \text{ hr} = 11 \text{ minutes} \]

\[ = 0.15 \text{ hr} = 9 \text{ minutes} \]

Assess

§1.9 - Units 5 Significant Figures

\[ 8202 \text{ to 3 sig fig} \]

\[ 8200 \quad 8.20 \times 10^3 \]