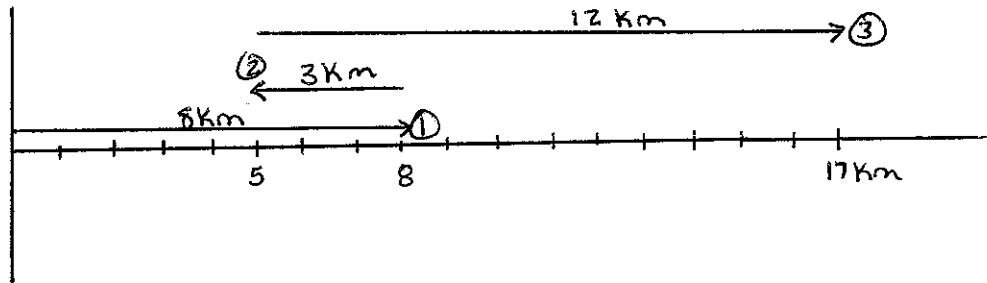


- 1) Given:
- ① 8km EAST
 - ② 3km WEST
 - ③ 12km EAST

- Find:
- A) $\Delta X = ?$
 - B) Total $X = ?$

Soln:



- A) $8\text{km} + 3\text{km} + 12\text{km} = 23\text{km}$
- B) 17km EAST

- 2) Given:
- ① 45.0 m North
 - ② 7.5 m East

Find: Straight-line displacement?

Soln:

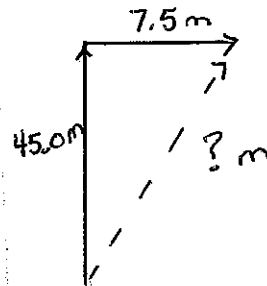
$$c^2 = a^2 + b^2$$

$$c = \sqrt{(45.0\text{m})^2 + (7.5\text{m})^2}$$

$$= \sqrt{2030\text{m}^2 + 56\text{m}^2}$$

$$= \sqrt{2090\text{m}^2}$$

$$c = 45.7\text{m}$$



$$\tan \phi = \frac{\Delta x}{\Delta y}$$

$$\phi = \tan^{-1} \left(\frac{\Delta x}{\Delta y} \right)$$

$$= \tan^{-1} \left(\frac{7.5\text{m}}{45.0\text{m}} \right)$$

$$\phi = 9.5^\circ \text{ EAST of North}$$

P.94 1) Given: $V_i = 105 \text{ km/h} @ 25^\circ$ from ground

P. 89 # 1,2

P. 92 # 1,3

Find: $V_x = ?$

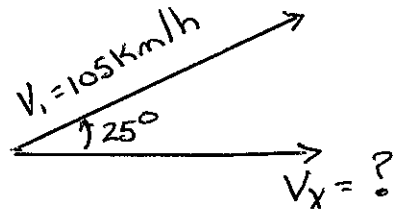
Soln:

$$\cos \theta = \frac{\text{Adjacent}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{V_x}{V}$$

$$V_x = V \cos \theta = (105 \text{ km/h}) (\cos 25^\circ)$$

$$\boxed{V_x = 95 \text{ km/h}}$$



3) Given: $V_i = 22 \text{ m/s} @ 15^\circ$ incline

Find: $V_x = ?$ $V_y = ?$

Soln:

$$V_x = V_i \cos \theta$$

$$V_y = V_i \sin \theta$$

$$V_x = (22 \text{ m/s}) \cos 15^\circ$$

$$\boxed{V_x = 21 \text{ m/s}}$$

$$V_y = (22 \text{ m/s}) \sin 15^\circ$$

$$\boxed{V_y = 5.7 \text{ m/s}}$$

