

SOH  
CAH  
TOA

$$-v^2 + u^2 = w^2 - v^2$$

$$\sqrt{u^2} = \sqrt{w^2 - v^2}$$

$$u = \sqrt{w^2 - v^2}$$

Let  $v = 15.2$  and  $w = 61.2$

$$\sqrt{(61.2)^2 - (15.2)^2} = u$$

$$\sqrt{3745.44 - 231.04} = u$$

$$\sqrt{3514.4} = u$$

$$59.28 = u$$

$$\cos \theta = \left(\frac{14.7}{37.7}\right)$$

$$\arccos\left(\frac{14.7}{37.7}\right) = \theta = 67.05$$

$$m = \left(\frac{m}{s}\right) \left(\frac{m}{s}\right)$$

$$2m = \left(m + \frac{1}{2}m\right) 2$$

$$2m = 2m + m$$

$$kg\left(\frac{m^2}{s^2}\right) = kg\left(\frac{m^2}{s^2}\right) m$$

$$\frac{m}{s} \cdot \frac{m}{s} = v \cdot v = v^2$$

$$R = \frac{kg\left(\frac{m^3}{kg \cdot s^2}\right)}{m^2} = \frac{kg\left(\frac{m^2}{s^2}\right)}{m} = F$$

$$\frac{R}{1} \cdot \frac{1}{m^2} = \frac{1}{m} \cdot \frac{F}{1}$$

$$R \cdot m^2 = m \cdot F$$

$$kg\left(\frac{m^2}{kg \cdot s^2}\right) m^2 = kg\left(\frac{m^2}{s^2}\right) m$$

$$\left(\frac{m^2}{s^2}\right) m^2 = kg\left(\frac{m^2}{s^2}\right)$$

$$v^2 \cdot m^2 = kg \cdot v^2$$

$$(\sqrt{145}, -48.08)$$

$$r_b = \sqrt{1^2 + (-1)^2}$$

$$r_c = \sqrt{(-1)^2 + (5)^2}$$

$$1 + 25 = \sqrt{26} = r_c$$

$$r = \sqrt{x^2 + y^2}$$

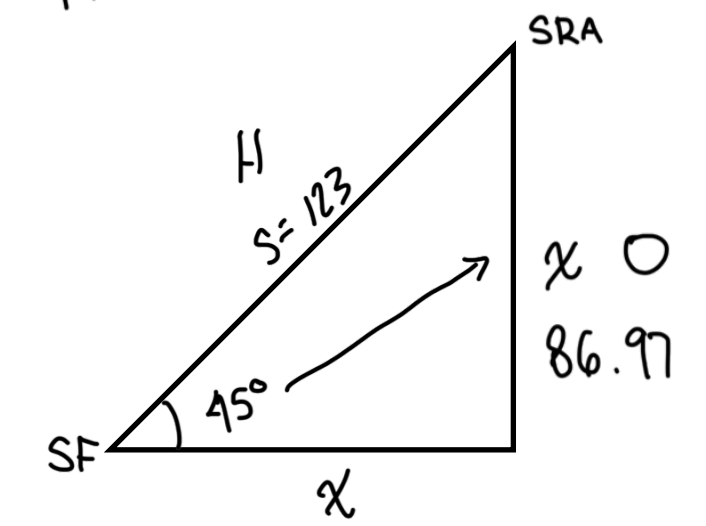
$$\left\| \begin{bmatrix} 4 \\ 1.5 \\ 2.5 \end{bmatrix} - \begin{bmatrix} 2.5 \\ 3.35 \\ 1.44 \end{bmatrix} \right\|$$

$$4 - 2.5 = 1.5$$

$$1.5 - 3.35 = -1.85$$

$$2.5 - 1.4 = 1.1$$

$$r = \sqrt{(1.5)^2 + (-1.85)^2 + (1.1)^2} = 2.62$$



$$123 \sin(45) = \left(\frac{x}{123}\right) (123)$$

$$86.97 = x_N \text{ or } s_x$$

$$123 \cos(45) = \left(\frac{x}{123}\right) (123)$$

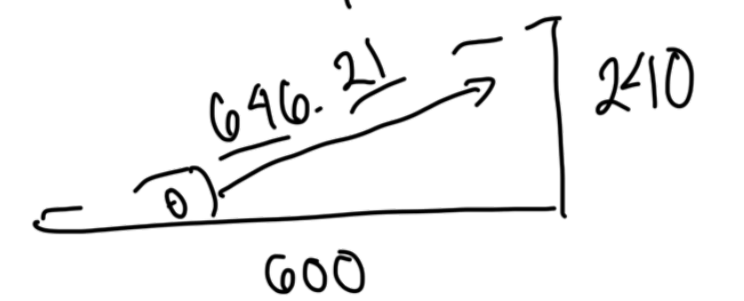
$$x \tan(45) = \frac{86.97}{x} (x)$$

11 moves = same # moves

$$\frac{x \text{ km}}{1560 \text{ m}} = \frac{1 \text{ km}}{1000 \text{ m}}$$

$$1.56 \text{ km}$$

$$\frac{1000x = 1560}{1000} \Rightarrow x = 1.56$$



$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 0 \\ 40 \end{bmatrix} + \begin{bmatrix} -21 \\ 0 \end{bmatrix} + \begin{bmatrix} 0 \\ 34 \end{bmatrix} + \begin{bmatrix} 51.61 \\ 51.61 \end{bmatrix} = \begin{bmatrix} 30.61 \\ 125.61 \end{bmatrix}$$

$$\|M\| = \sqrt{x^2 + y^2} = 129.29$$

$$\tan^{-1}\left(\frac{125.61}{30.61}\right) = 76.3^\circ$$

$$\begin{bmatrix} x \\ y \end{bmatrix} \rightarrow \begin{bmatrix} -3 \\ -7 \end{bmatrix} + \begin{bmatrix} -10 \\ 3 \end{bmatrix} + \begin{bmatrix} 13 \\ 4 \end{bmatrix} = \begin{bmatrix} 13 \\ -13 \end{bmatrix}$$

$$\cos \theta = \frac{600}{646.21}$$

$$\theta = \cos^{-1}\left(\frac{600}{646.21}\right)$$

$$\theta = 21.8^\circ$$

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

$$(210)^2 + (600)^2 = \sqrt{57600 + 360000} = \sqrt{417600}$$