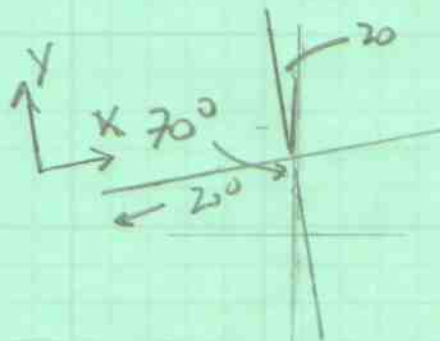
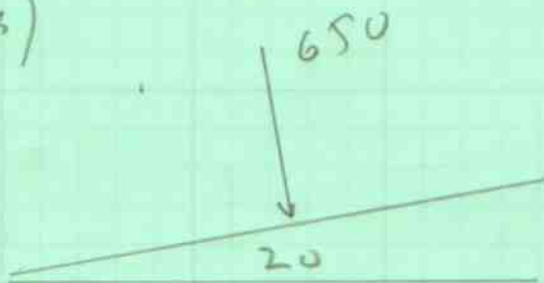


2.139)



vert - F_v

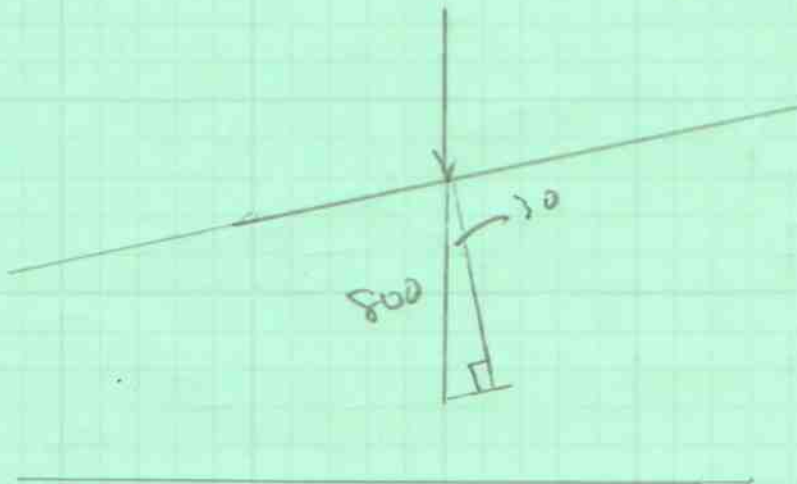
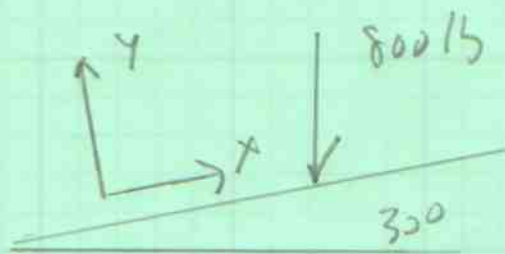
$$F_v = 650 \cos 20$$

$$F_v = \underline{\underline{-610.80 \text{ N}}}$$

horizontal F_H

$$F_H = 650 \sin 20$$

$$= \underline{\underline{+222.31 \text{ N}}}$$

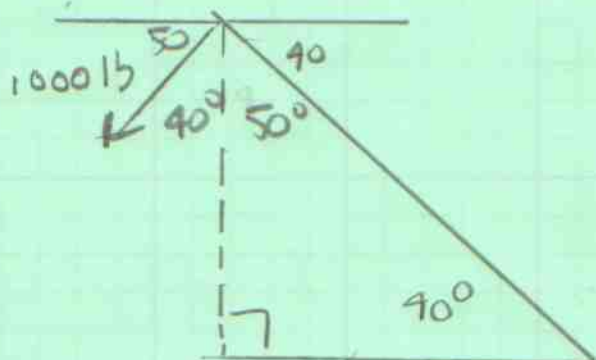


$$y = 800 \cos 30$$

$$y = \underline{\underline{-692.82}}$$

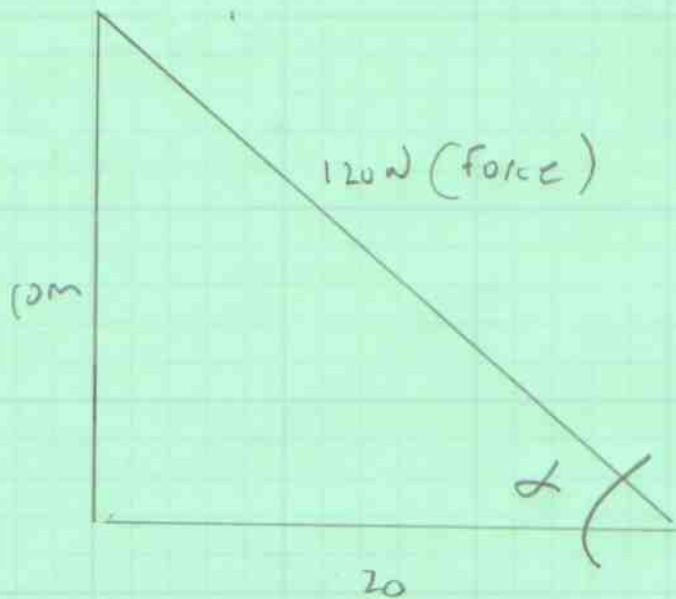
$$x = 800 \sin 30$$

$$x = \underline{\underline{-400}}$$



$$x = 1000 \cos 50 = \underline{\underline{-642.79}}$$

$$y = 1000 \sin 50 = \underline{\underline{766.04}}$$

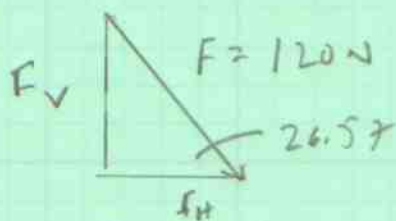


① DETERMINING α USING ATAN

$$\alpha = \text{TAN}^{-1} \left(\frac{10}{20} \right)$$

$$\alpha = \underline{\underline{26.57}}^{\circ} \text{ANS}$$

②



$$F_H = F \cos 26.57$$

$$F_H = \underline{\underline{107.33 \text{ N}}}$$

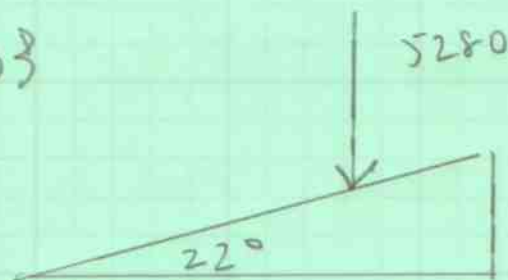
$$F_V = F \sin 26.57$$

$$F_V = \underline{\underline{53.67 \text{ N}}}$$

Slope 22°

Skier 160 lb

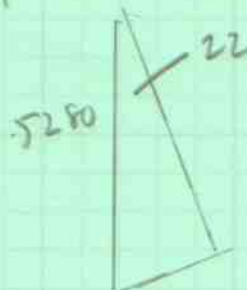
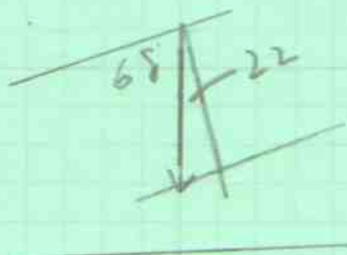
33



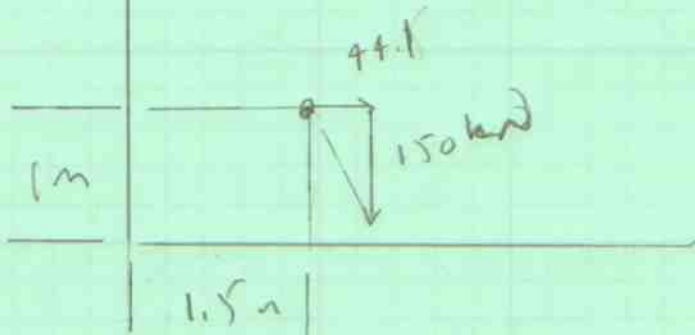
1) Determine Tension
using total weight

$$\begin{aligned} \text{wt} &= (\# \text{ skier}) * (\text{wt} / \text{skier}) \\ &= \underline{5280 \text{ lb}} \end{aligned}$$

2) Tension (T) equals downward component of total weight

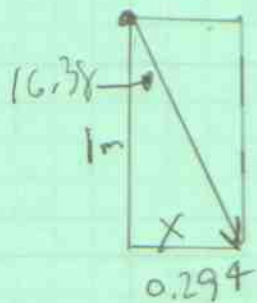


$$\begin{aligned} T &= 5280 \sin 22 \\ &= 1977.92 \end{aligned}$$



1) Det \vec{r} - use Pythagoras
 $\vec{r} = 44.1^\circ + 150^\circ$

$$\vec{r} = \underline{\underline{156.35 \text{ kN}}}$$



$$X = 1 + \tan(16.35)$$

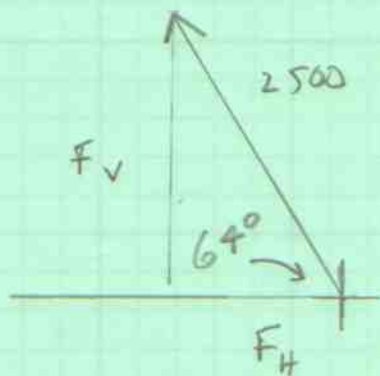
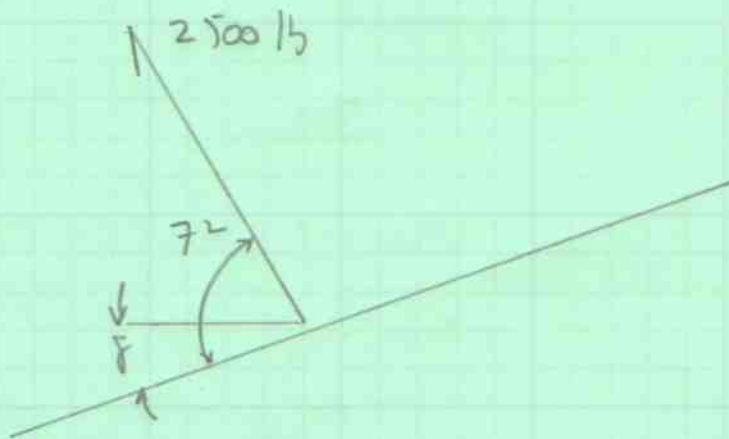
$$X = 1.5 + 0.294$$

$$= \underline{\underline{1.794 \text{ m}}} \text{ Ans}$$

$$F = 2500 \text{ lb}$$

$$\text{L4 } \alpha = 72^\circ$$

$$\text{small } \beta = 8^\circ$$



$$\begin{aligned} F_H &= -2500 \cos 64 \\ &= \underline{\underline{-1095.93 \text{ lb}}} \end{aligned}$$

$$\begin{aligned} F_V &= +2500 \sin 64 \\ &= \underline{\underline{+2246.99 \text{ lb}}} \end{aligned}$$