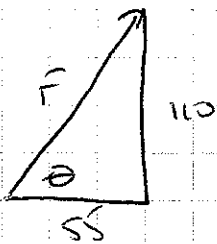


⑦



$$F = \sqrt{110^2 + 55^2}$$

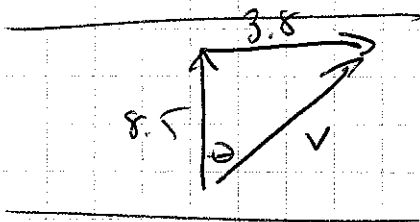
$$= 123 \text{ N}$$

$$\theta = \tan^{-1}\left(\frac{110}{55}\right)$$

$$= 63^\circ$$

$$F = 123 \text{ N } [63^\circ \text{ N of E}]$$

⑧



$$a) v = \sqrt{8.5^2 + 3.8^2}$$

$$= 9.3 \text{ m/s}$$

$$\theta = \tan^{-1}\left(\frac{3.8}{8.5}\right)$$

$$= 24^\circ$$

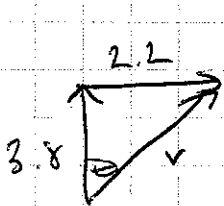
$$v = 9.3 \text{ m/s } [66^\circ \text{ to shore}]$$

$$b) v = \frac{d}{t}$$

$$8.5 = \frac{110}{t}$$

$$t = \frac{110}{8.5} = 12.9 \text{ s}$$

⑨



$$a) v = \sqrt{3.8^2 + 2.2^2}$$

$$= 4.4 \text{ m/s}$$

$$\theta = \tan^{-1}\left(\frac{2.2}{3.8}\right)$$

$$= 30^\circ$$

$$v = 4.4 \text{ m/s } [60^\circ \text{ to shore}]$$

$$b) v = \frac{d}{t}$$

$$t = \frac{d}{v} = \frac{41}{3.8} = 10.8 \text{ s}$$

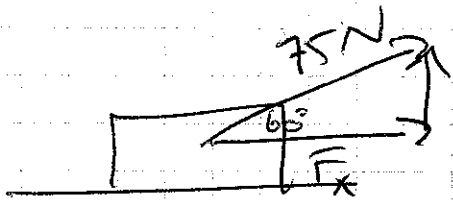
9) c) $v = \frac{d}{t}$

$$d = v \cdot t$$

$$= (22)(10.8)$$

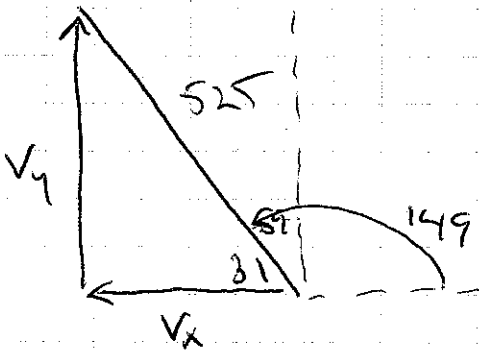
$$= 23.7 \text{ m}$$

11)



$$F_x = 75 \cos 60$$
$$= 37.5 \text{ N}$$

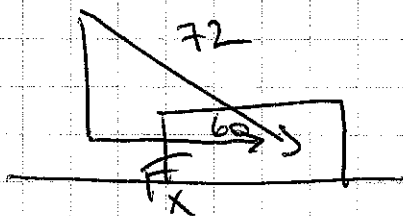
12)



$$v_x = 525 \cos 31$$
$$= 450 \text{ km/h}$$

$$v_y = 525 \sin 31$$
$$= 270.4 \text{ km/h}$$

13) a)

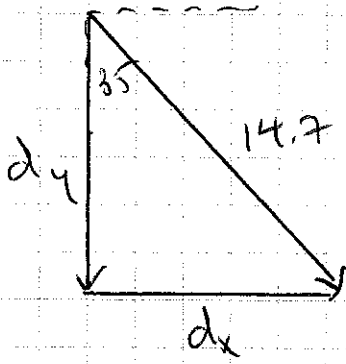


$$F_x = 72 \cos 60$$
$$= 36 \text{ N}$$

b) $F_x = 72 \cos 40$
 $= 55 \text{ N}$

c) $F_x = 72 \cos 30$
 $= 62.4 \text{ N}$

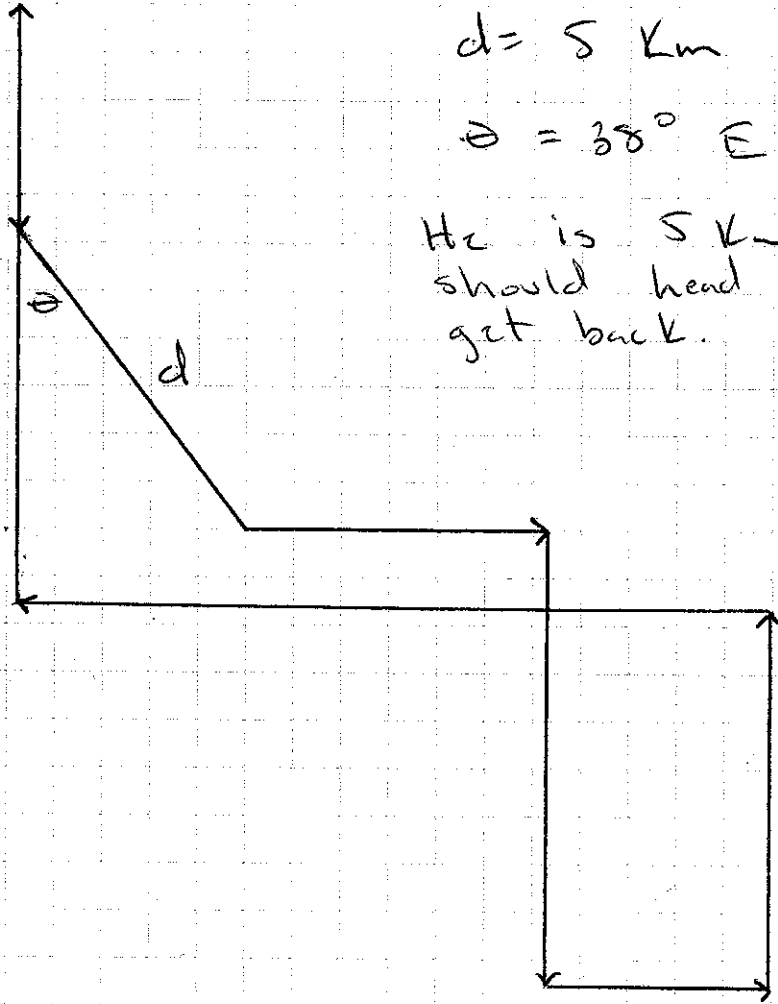
(14)



$$d_x = 14.7 \sin 35$$
$$= 8.4 \text{ km}$$

$$d_y = 14.7 \cos 35$$
$$= 12.0 \text{ km}$$

11



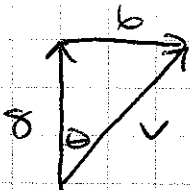
$$d = 5 \text{ km}$$

$$\theta = 38^\circ \text{ E of S}$$

He is 5 km from camp and should head 38° E of S to get back.

$$1 \text{ cm} = 1 \text{ km}$$

13



$$\begin{aligned} \text{a) } v &= \sqrt{8^2 + 6^2} \\ &= 10 \text{ m/s} \end{aligned}$$

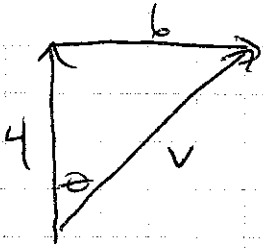
$$\begin{aligned} \theta &= \tan^{-1}\left(\frac{6}{8}\right) \\ &= 37^\circ \end{aligned}$$

$$v = 10 \text{ m/s } [53^\circ \text{ to shore}]$$

$$\begin{aligned} \text{b) } t &= \frac{d}{v} = \frac{240 \text{ m}}{8 \text{ m/s}} \\ &= 30 \text{ s} \end{aligned}$$

$$\begin{aligned} \text{c) } d &= v \cdot t \\ &= (6)(30) \\ &= 180 \text{ m} \end{aligned}$$

14



$$\begin{aligned} a) \quad v &= \sqrt{4^2 + 6^2} \\ &= 7.2 \text{ m/s} \\ \theta &= \tan^{-1} \left(\frac{6}{4} \right) \\ &= 56^\circ \end{aligned}$$

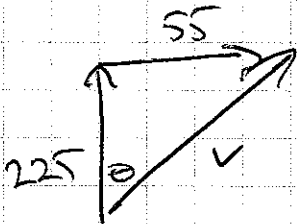
$$v = 7.2 \text{ m/s } [34^\circ \text{ to shore}]$$

$$\begin{aligned} b) \quad t &= \frac{d}{v} = \frac{360}{4} \\ &= 90 \text{ s} \end{aligned}$$

$$\begin{aligned} c) \quad d &= v \cdot t \\ &= (6)(90) \\ &= 540 \text{ m} \end{aligned}$$

$$d) \quad 90 \text{ s}$$

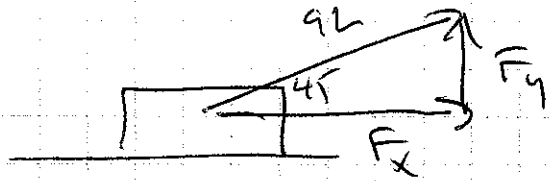
15



$$\begin{aligned} v &= \sqrt{55^2 + 225^2} \\ &= 232 \text{ km/h} \\ \theta &= \tan^{-1} \left(\frac{55}{225} \right) \\ &= 14^\circ \end{aligned}$$

$$v = 232 \text{ km/h } [14^\circ \text{ E of N}]$$

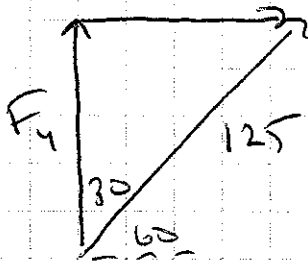
(2)



$$F_x = 92 \cos 45$$
$$= 65.1 \text{ N}$$

$$F_y = 92 \sin 45$$
$$= 65.1 \text{ N}$$

(2)



$$F_y = 125 \cos 30$$
$$= 108 \text{ N}$$