

$$\Delta d_{1x} = 6.00 \sin 20.0^\circ = 2.05$$

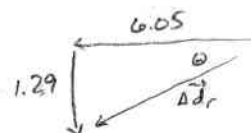
$$\Delta d_{1y} = 6.00 \cos 20.0^\circ = -5.64$$

$$\Delta d_{2x} = 8.00 \sin 30.0^\circ = 4.00$$

$$\Delta d_{2y} = 8.00 \cos 30.0^\circ = 6.93$$

	x	y
Δd_1	2.05	-5.64
Δd_2	4.00	6.93
Δd_r	6.05	1.29

back to camp -6.05 -1.29



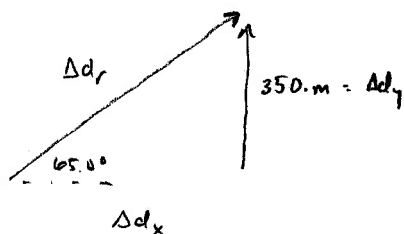
$$\Delta d_r = \sqrt{1.29^2 + 6.05^2} = 6.18 \text{ km}$$

$$\theta = \tan^{-1} \frac{1.29}{6.05}$$

$$= 12.0^\circ \text{ S of W}$$

$$\boxed{6.18 \text{ km @ } 12.0^\circ \text{ S of W}}$$

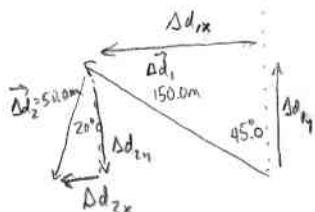
3.



$$\Delta d_x = \frac{350.}{\tan 65.0^\circ} = 163 \text{ m}$$

$$\Delta d_r = \sqrt{163^2 + 350.^2} = 386 \text{ m}$$

2.



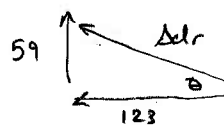
$$\Delta d_{1x} = 150 \sin 45.0^\circ = 106$$

$$\Delta d_{1y} = 150 \cos 45.0^\circ = 106$$

$$\Delta d_{2x} = 50.0 \sin 20.0^\circ = -17.1$$

$$\Delta d_{2y} = 50.0 \cos 20.0^\circ = -47.0$$

	x	y
Δd_1	-106	106
$+ \Delta d_2$	-17.1	-47.0
	-123	59

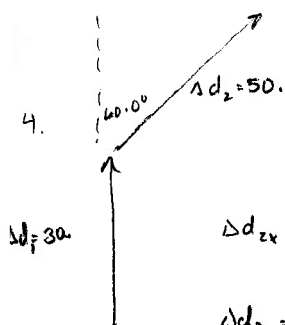


$$\Delta d_r = \sqrt{123^2 + 59^2} = 140 \text{ m}$$

$$\theta = \tan^{-1} \frac{59}{123} = 26^\circ$$

$$\boxed{140 \text{ m @ } 26^\circ \text{ N of W}}$$

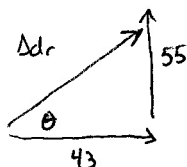
4.



	x	y
Δd_1	0	30.
Δd_2	43	25
	43	55

$$\Delta d_{2x} = 50. \sin 60.0^\circ = 43 \text{ miles}$$

$$\Delta d_{2y} = 50. \cos 60.0^\circ = 25 \text{ miles}$$

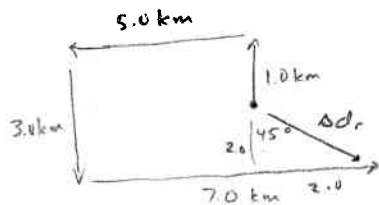


$$\Delta d_r = \sqrt{43^2 + 55^2} = 70 \text{ miles}$$

$$\theta = \tan^{-1} \frac{55}{43} = 52^\circ \text{ N of E}$$

$$\boxed{70 \text{ miles @ } 52^\circ \text{ N of E}}$$

5.



$$\Delta d_r = \sqrt{2.0^2 + 2.0^2}$$

$$= \sqrt{8.0}$$

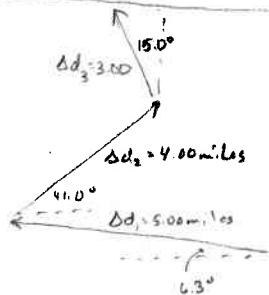
$$= 2.8 \text{ km}$$

$$\theta = \tan^{-1} 1$$

$$= 45^\circ$$

2.8 km @ 45° S of E

6.



$$\Delta d_{1x} = 5.00 \cos 6.3^\circ = -5.0$$

$$\Delta d_{1y} = 5.00 \sin 6.3^\circ = .55$$

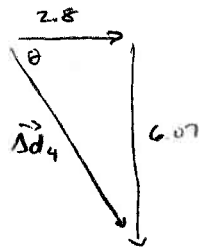
$$\Delta d_{2x} = 4.00 \cos 41.0^\circ = 3.02$$

$$\Delta d_{2y} = 4.00 \sin 41.0^\circ = 2.62$$

$$\Delta d_{3x} = 3.00 \sin 15.0^\circ = -.776$$

$$\Delta d_{3y} = 3.00 \cos 15.0^\circ = 2.90$$

	X	Y
Δd_1	-5.0	.55
Δd_2	3.02	2.62
+ Δd_3	-.776	2.90
Δd_r	-2.8	6.07
Δd_4	2.8	-6.07



$$\Delta d_4 = \sqrt{2.8^2 + 6.07^2}$$

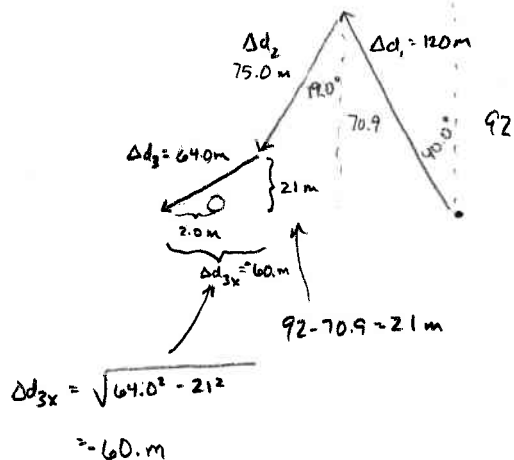
$$= 6.7 \text{ km}$$

$$\theta = \tan^{-1} \frac{6.07}{2.8}$$

$$= 65^\circ$$

6.7 km @ 65° S of E

7.



$$\Delta d_{1x} = 120 \sin 40.0^\circ = -77$$

$$\Delta d_{1y} = 120 \cos 40.0^\circ = 92$$

$$\Delta d_{2x} = 75.0 \sin 19.0^\circ = -24.4$$

$$\Delta d_{2y} = 75.0 \cos 19.0^\circ = -70.9$$

$$-77 + (-24.4) + (-60) + 2 = -159$$

159 m