

Unit 3 Review

Use bearings to **sketch and solve** each problem

1) Ship 1 leaves port and travels 125 miles on a bearing of N 54° W. Ship 2 leaves the same port and travels 95 miles on a bearing of S 36° W.

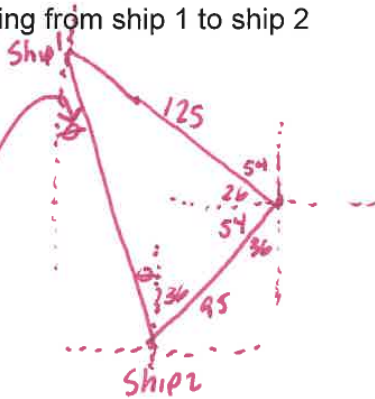
- How far apart are the two ships
- Determine the bearing from ship 1 to ship 2

Ship 2 angle

$$\tan^{-1}\left(\frac{125}{95}\right) = 52.76$$

$$\theta = 52.76 - 36 = 16.76$$

Bearing: S 16.76° E



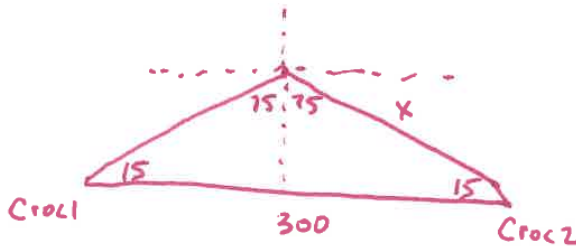
right triangle

Distance Apart

$$125^2 + 95^2 = d^2$$

$$d = 157.64$$

2) The crocodile hunter is the same distance away from two crocs. Croc 1 is at a bearing of S 75° W. Croc 2 is at a bearing of S 75° E. If the crocs are 300 feet away from each other, how far is the hunter from Croc 2.



$$\frac{\sin 15}{X} = \frac{\sin 150}{300}$$

$$X = 155.29 \text{ ft}$$

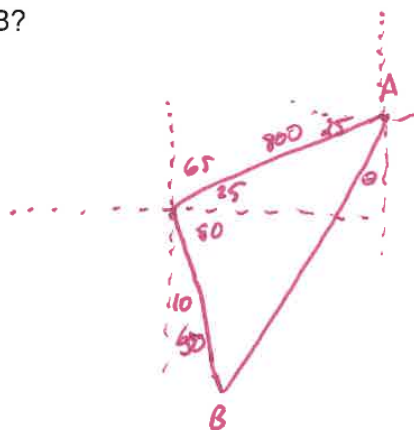
3) Jillian is surveying land. She is 800 feet away from marker A and she is 650 feet away from marker B. If the bearing from Jillian to marker A is N 65° E and the bearing from Jillian to marker B is S 10° E, what is the bearing from marker A to marker B?

$$\theta = 90 - 25 - 32.96$$

$$\theta = 32.04$$

Bearing From A to B

S 32.04° W



$$AB^2 = 800^2 + 650^2 - 2(800)(650)(\cos 105)$$

$$AB = 1153.98$$

∠ A O B

$$\frac{\sin 105}{1153.98} = \frac{\sin A}{650}$$

$$\angle A = 32.96$$