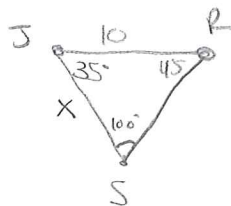


4.4 - Oblique triangles applications Day 4 Practice

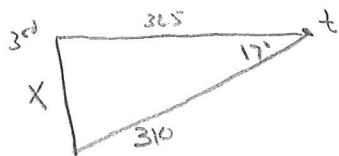
- 1.) Rosie is standing 10 miles directly east of Juan. ^{on a coastline of Florida.} Both can see the same ship in the water. The angle between the coastline and the line between the ship and Juan is 35 degrees. The angle between the coastline and the line between the ship and Rosie is 45 degrees. How far is the ship from Juan?



$$\frac{10}{\sin 100} = \frac{X}{45}$$

$$X = \boxed{7.18 \text{ miles}}$$

- 2.) Rachel and Erika are golfing on a beautiful summer day. The 3rd hole is 325 yards from the tee. Rachel hits her ball 310 yards but is 17° to the left of the hole. How far is her ball from the hole?

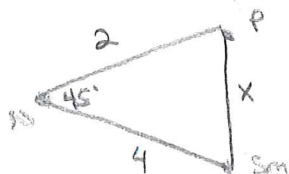


$$X^2 = 325^2 + 310^2 - 2(325)(310)\cos 17^\circ$$

$$X^2 = 9029.59 \dots$$

$$X = \boxed{95.02 \text{ yds}}$$

- 3.) Three boats are at sea: The Nina, The Pinta, and The Santa Maria. The crew of The Nina can see both The Pinta and The Santa Maria. The angle between the line of sight from the Nina to The Pinta and the Santa Maria is 45 degrees. If the distance between The Nina and The Pinta is 2 miles and the distance between The Nina and The Santa Maria is 4 miles, what is the distance between The Pinta and The Santa Maria?

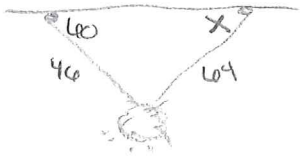


$$X^2 = 2^2 + 4^2 - 2(2)(4)\cos 45$$

$$X^2 = 8.486 \dots$$

$$X = 2.95 \text{ miles}$$

- 4.) A chandelier is suspended from the ceiling by two chains. One chain is 46 cm long and forms a 60 angle with the ceiling. The other chain is 64 cm long. What angle does the longer chain make with the ceiling?



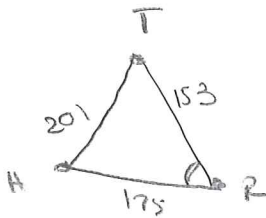
$$\frac{64}{\sin 60} = \frac{46}{\sin X}$$

$$\sin X = .6224\dots$$

$$X = 38.495$$

$$\boxed{38.50^\circ}$$

- 5.) Tom, Rick, and Harry set up their tents in a triangular formation. If the distance between Tom and Rick's tent is 153 feet, the distance between Tom and Harry's tent is 201 feet, and the distance between Rick and Harry's is 175 feet, what is the angle of Rick's tent in relation to Tom's and Harry's?



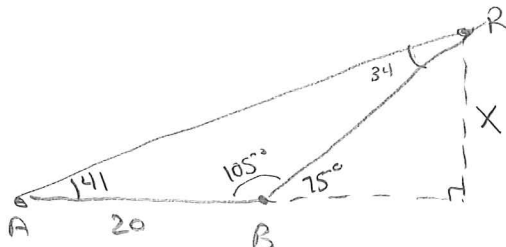
$$201^2 = 153^2 + 175^2 - 2(153)(175)\cos R$$

$$-13633 = -53580\cos R$$

$$.2545\dots = \cos R$$

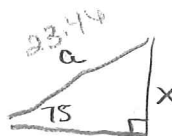
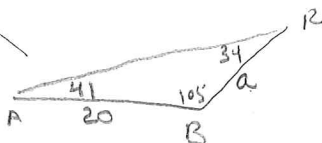
$$\boxed{75.25^\circ = R}$$

- 6.) At noon, two tracking stations on Earth (A and B), 20 km apart, measure the angles of elevation of a rocket that was launched with a weather satellite. From station A, the angle of elevation is 41 and from station B it is 75. Find the altitude of the rocket. (The rocket is not between the stations)



$$\frac{20}{\sin 34} = \frac{a}{\sin 41}$$

$$a = 23.44$$



$$\sin 75^\circ = \frac{X}{23.44}$$

$$\boxed{X = 22.06 \text{ km}}$$