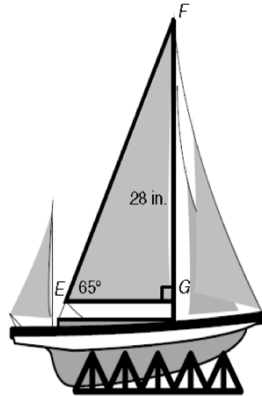


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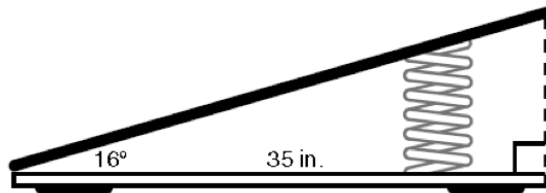
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Trigonometric Application

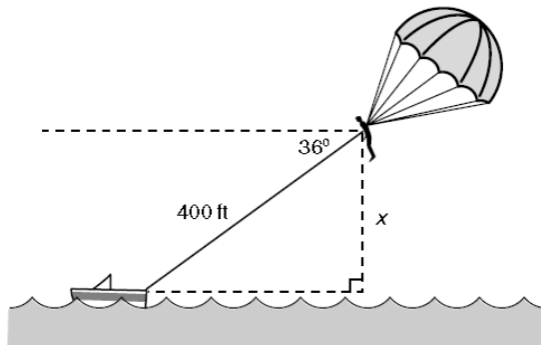
1. What is EF , the measure of the longest side of the sail on the model?



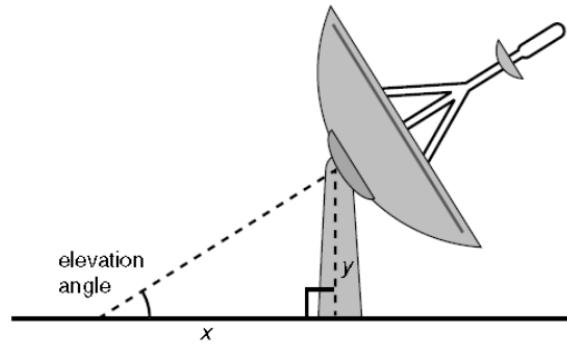
2. What is the length of the springboard shown below?



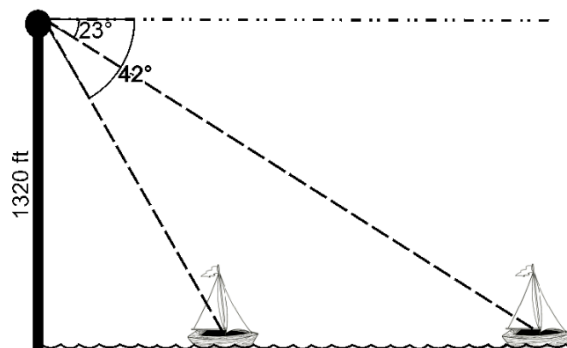
3. The figure shows a person parasailing. What is x , the height of the parasailer?



4. The elevation angle from the ground to the object to which the satellite dish is pointed is 32 degrees. If $x = 2.5$ meters, what is y , the height of the satellite stand?



5. A person in an observation tower 1320 feet above sea level spots two boats. One boat is at an angle of depression of 23 degrees. The other boat is at an angle of depression of 42 degrees. How far apart are the boats?



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You must draw your own picture. Put your final answer in the blank beside the problem.

- _____ 6. A boy flying a kite lets out 300 feet of string which makes an angle of 52° with the ground. Assuming the string is tight, find to the nearest foot, how high the kite is above the ground.
- _____ 7. A 20-foot ladder leans against a building and makes an angle of 72° with the ground. Find to the nearest foot the distance between the foot of the ladder and the building.
- _____ 8. At a point on the ground 50 feet from the foot of a tree, the angle of elevation to the top of the tree contains 48° . Find the height of the tree to the nearest foot.
- _____ 9. A 30-foot steel girder is leaning against a wall. The foot of the girder is 20 feet from the wall. Find to the nearest degree, the number of degrees contained in the angle which the girder makes with the ground.

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- _____ 10. Find to the nearest degree, the measure of the angle of elevation of the sun when a boy 5 feet tall casts a shadow of 5 feet.
- _____ 11. After takeoff, a plane flies in a straight line for a distance of 4000 feet in order to gain altitude of 800 feet. Find to the nearest degree, the number of degrees contained in the angle which the rising plane makes with the ground.
- _____ 12. Two office buildings are 51 meters apart. The height of the taller building is 207 meters. The angle of depression from the top of the taller building to the top of the shorter building is 15° . Find the height of the shorter building.
- _____ 13. A surveyor is 980 feet from the base of the world's tallest fountain at Fountain Hills, Arizona. The angle of elevation to the top of the column of water is 29.7° . His angle measuring device is at the same level as the base of the fountain. Find the height of the column of water to the nearest 10 feet.

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_____ 14. On the observation platform in the crown of the Statue of Liberty, Miguel is approximately 250 feet above the ground. He sights a ship in New York harbor and measures the angle of depression as 18° . Find the distance from the ship to the base of the statue.

_____ 15. A meteorologist measures the angle of elevation of a weather balloon as 41° . A radio signal from the balloon indicates that it is 1503 meters from her location. How high is the weather balloon above the ground?