Assignment 1

The side of a hill makes an angle of 12° with the horizontal. A wire is to be run from the top of a 50 meter tower on the top of the hill to a stake located 40 meter down the hillside from the base of the tower. How long a wire is needed?

Assignment 2

Two points P and Q are on opposite sides of a river. From P to another point R (both on the same side of the river) is 100 meter. Angles PRQ and RPQ are found to be 20° and 120° respectively. Find the distance from P to Q.

Assignment 3

A boat runs in a straight line for 3 kilometers, then makes a 40° turn and goes for another 6 kilometers. How far is the boat from its starting point?

Assignment 4

A vertical statue 6,3 meters high stands on top of a hill. At a point on the side of the hill 35 meters from the statue's base, the angle between the hillside and a line from the top of the statue is 10°. What angle does the side of the hill make with the horizontal?

Assignment 5

A fence post is located 10,8 meter from one corner of a building and 12 meter from the adjacent corner. Fences are put up between the post and the building corners to form a triangular garden area. The 12 meter fence makes a 58 ° angle with the building. What is the area of the garden?

Assignment 6

Assume that the earth is a sphere of radius 6366 kilometer. A satellite travels in a circular orbit around the earth, 600 kilometer above the equator, making one full orbit every 6 hours. If it passes directly over a tracking station at 2:00 pm, what is the distance from the satellite to the tracking station at 2:05 pm?

Assignment 7

Two straight roads meet an angle of 40° in Harville, one leading to Eastview and the other to Wellston. Eastview is 18 kilometers from Harville and 20 kilometers from Wellston. What is the distance from Harville to Wellston?

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Assignment 8

Each of two observers 120 meter apart measures the angle of elevation to the top of a hill. These angles are 51° and 65° respectively. How high is the hill?

Assignment 9

A building is of unknown height. At a distance of 30 meter away from the building, an observer notices that the angle of elevation to the top of the building is 75° and that the angle of elevation to a flag on top of the building is 78°. How tall is the flag pole?

Assignment 10

When the angle of elevation of the sun is 74°, a telephone pole tilted at an angle of 65° towards the sun casts a shadow 15 meter long on the ground. Find the length of the phone pole.