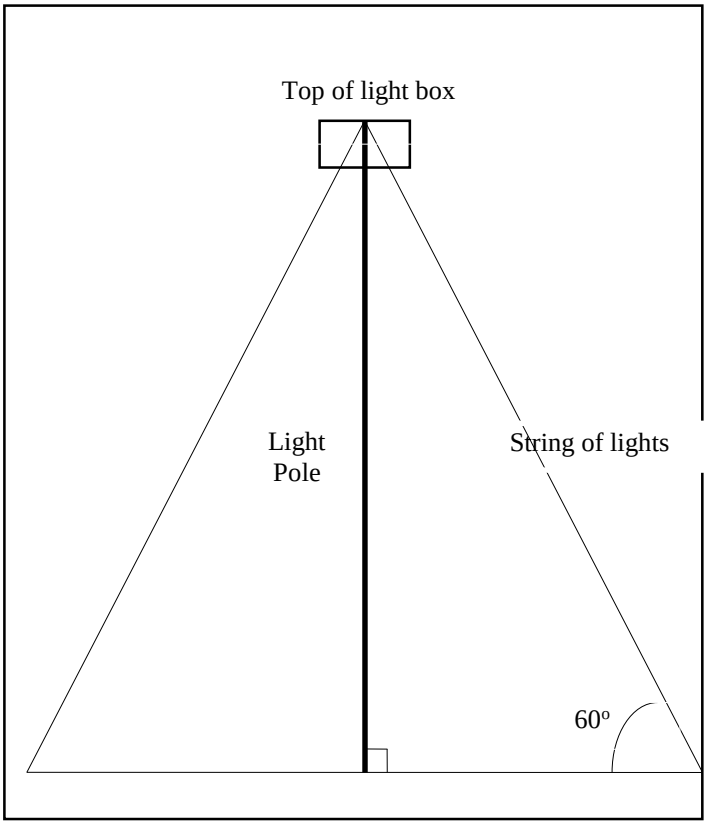
LIGHT MY TREE
(5 points)

Philosophy students at Moravian University have been planning to decorate one of the light poles in the PPHAC Commons in the shape of a Holiday tree for months. Their goal has been to make the campus look more festive by stringing cables with lights from the top of one of the light poles to the ground. Students will extend cables with lights downward to meet the ground at an angle of about 60o. As a safety precaution, electricity to the lights will be provided from the top of the pole at the location of the disconnected lamp. Everyone (except University officials) has been excited about the project. Under Cody Yarnall's leadership, the student steering committee even found several fabricators willing to manufacture the proper length of lights in one string if the committee could supply them with the height of the pole. Students will also need to rent a cherry picker that will be able to reach the top of the light to assemble the tree.

With the students' project at a standstill due to the need for the pole's height, Cody reached out to Moravian officials in Colonial Hall and maintenance. Despite the urgency of the students 'needs, they have been unwilling to provide this crucial information. The committee and Cody are now turning to you, the students in Gary Becker's PHYS-108 class, as their last hope for a solution to their dilemma.

To solve this problem, here are some of the items or concepts you may want to consider utilizing: yardstick, tape measure, pencil, paper, trigonometry, algebra, or just plain geometry (making a scaled drawing), the sun, moon, shadows, altitude of the sun/moon and the time when the measurement was made, similar triangles, a calculator (for faster computation). A drawing of the problem is sketched below.



TEAM'S SOLUTION ON BACK
Name of Team: _____

Date: _____

Team Members (3-6 individuals)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

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Team solution

July 13, 2024