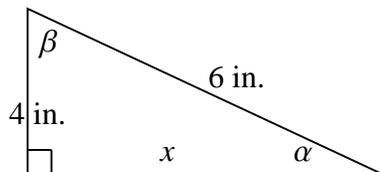
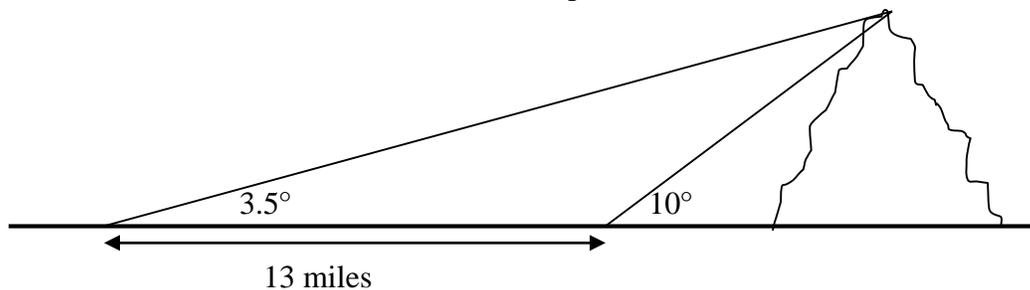


In this lab you will do several problems that will help your "remember" some your trig skills. Completeness, neatness as well as accuracy are weighed when calculating your grade. You are encouraged to work in pairs or groups of 3 or 4. If you do work with more than one person, only hand-in one lab write-up per group with all names neatly written on the lab. Each person will receive the same grade in the group. To reward you for your group-work efforts you will each get 10% bonus added back to your score. This lab is due the next class meeting. We will have about a half hour that you can get together in your groups to compare answers and turn in your neatest selection. Write ONLY YOUR ANSWERS HERE, show additional work on a separate paper and staple it to this sheet. Late work turned in after Monday will be reduced by 50%. This lab is worth 55 points

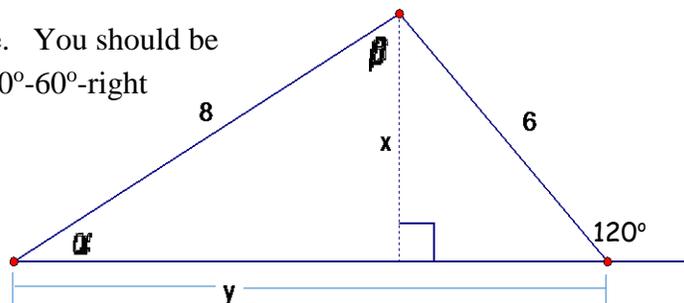
1. Given the right triangle below, find α , β , in degrees to the nearest tenth, and x to the nearest 100^{th} using correct units of measure. (6 points)



2. In traveling across flat land you notice a butte directly in front of you. Its angle of elevation (to the peak) is 3.5° . After you drive 13 miles closer to the butte, the angle of elevation is 10° . Approximate the height of the butte in miles and feet, both to the nearest 100^{th} . (6 points)



3. (9 pts) Determine α , β , x , and y in the following triangle. You should be able to find the exact value for x using your knowledge of 30° - 60° -right triangles. Round the other three values to the nearest 100^{th} .



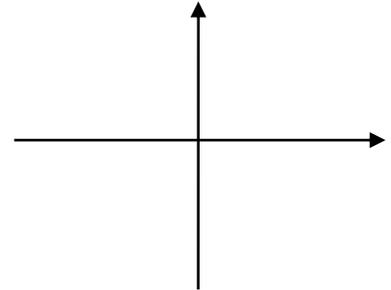
Answer 4) & 5) to the nearest 100th in radians (do not write as a multiple of π). Draw and label all 4 angles in standard position. Show the direction of the terminal side of each angle's rotation. (16 points)

4. It turns out that $\sin(\alpha) = 2/3$. a) In what quadrant can α be in?

b) When you use your calculator to solve this, which quadrant is your answer in?

c) Find all four solutions to this equation that are between -2π and 2π (that's approximately $[-6.28, 6.28]$).

d) Draw and label the angles in standard position.



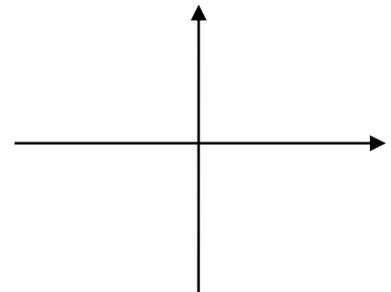
5. Answer the same questions as 4) if $\cos(\alpha) = 2/3$.

a)

b)

c)

d)



6. An observer in a lighthouse 400 feet above sea level observes two ships directly offshore. The angles of depression to the ships are 4° and 7° . Draw a picture that represents the situation. How far apart are the ships? Round to the nearest 100th. (8 points)

7. Given that the $\sin(\theta) = 3/5$ and that θ is in the second quadrant, find the exact values of the other 5 trig functions. Use appropriate notation. (10 points)