CSI31   Lecture 5   In-class assignment:

1. Write a program that calculates the distance between two points.
Recall, that if we have two points P(x$_1$,y$_1$) and Q(x$_2$,y$_2$), then the distance between them is

$$D=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$$

Notes:
- user will provide the point coordinates (therefore, you need to prompt for them)
- in order to use **sqrt** function, you need to *import math library*, and then call it with **math.sqrt(...)**

Here is an unfinished program (you can also grab it from our website, file
InClassAssignment1_sketch.py):

```
def main():
    print("Hello! Let's find the distance between two points, using the
formula")
    print("distance = sqrt( (x2-x1)^2 + (y2-y1)^2 ).\n")
    x1 = float(input("Enter the x-coordinate of the FIRST point:"))
    y1 = float(input("Enter the y-coordinate of the FIRST point:"))
    print()
    x2 = # put the appropriate code here
    y2 = # put the appropriate code here

    import math
    distance = # put the appropriate code here
    print("The distance between points (",x1,",",y1,") and (" \
        ,x2,",",y2,") is",distance)

main()
```

2. Recall from your trig classes that one way to find the height of a tree (or a building) is by using the
angle of elevation and the distance from the object, as in the picture:
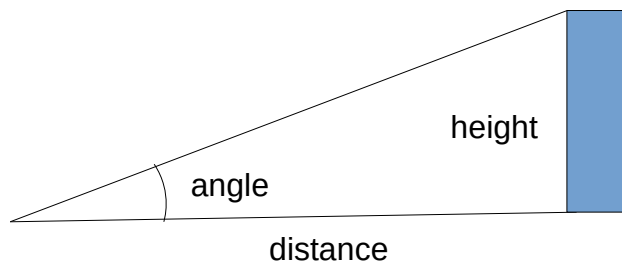
Write a program where the user enters the distance in feet to the object and the angle of elevation in
degrees, and finds the height of the object. Remember that the formula is:

height = distance * tan(angle)

You will need to use the math library, but beware: in the math library, the tangent function "tan" is
defined using radians, not degrees, so you need to convert the angle from degrees to radians.