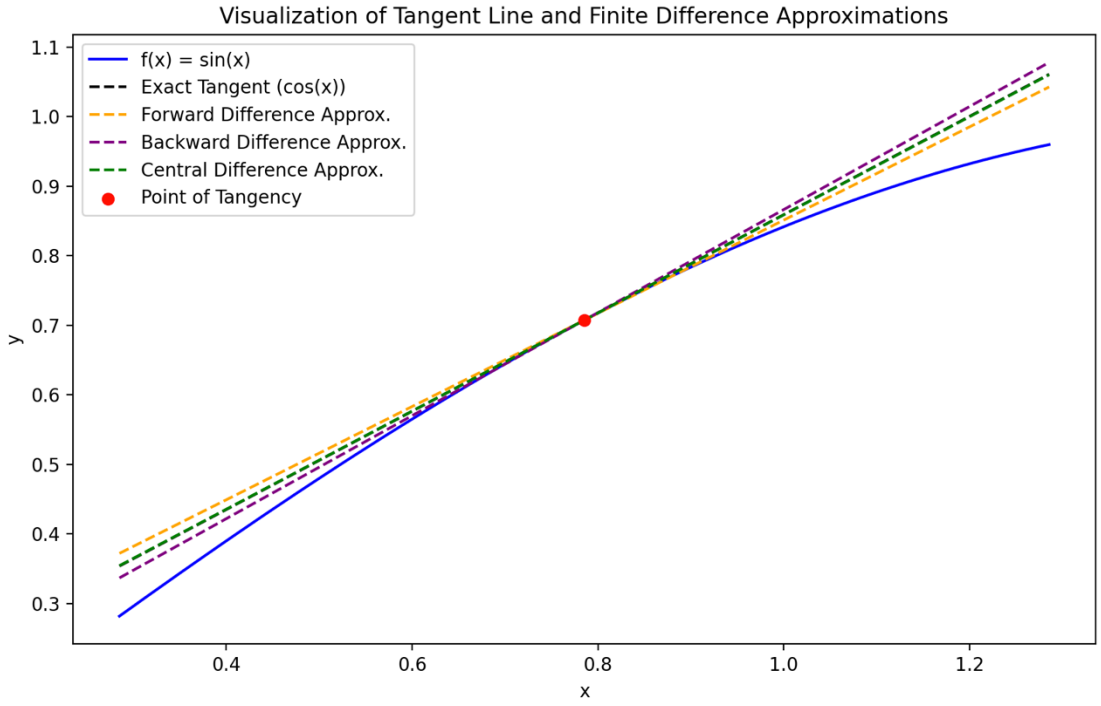
Task 1.
I took an example of RSA encryption(simplified) and how the ciphertext can be different based on if it's calculated as int or as a floating point. From the python code I provided it can be seen that there is a difference between the results. When we are dealing with small numbers it might be negligible or nonexistent, but in the example given by me where I implement RSA, the difference is quite big since we are dealing with very big numbers.

Task 2.
In this task I took an example of sinx at x = pi/4 and calculated the exact derivative as well as forward, backward and central difference. I started at h = 0.1 and gradually reduced it. From the graphs we can see that at 10^-8 the error starts to increase as the h decreases.


Visualization of Tangent Line and Finite Difference Approximations
f(x) = sin(x)
Exact Tangent (cos(x))
Forward Difference Approx.
Backward Difference Approx.
Central Difference Approx.
Point of Tangency
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
y
0.4
0.6
0.8
1.0
1.2
x