

=== Problem 2(1,2a): Bisection Method ===

eps=0.01, iterations=9, root=-0.007421875000000355
eps=0.0001, iterations=16, root=-2.136230468785527e-05
eps=1e-08, iterations=29, root=-7.078051922349005e-09
eps=1e-16, iterations=56, root=4.163336342344337e-17
eps=1e-32, iterations=109, root=1.5407439555097887e-33
eps=1e-64, iterations=215, root=-1.8991135491519597e-65
eps=1e-128, iterations=428, root=4.3279587270870636e-129

=== Problem 3(1): Fixed Point Iteration ===

x0=5: [5, 3.626599233054984, 2.3248573504584265, 1.160272096653756, 0.3008189081993278, 0.008610991230440013, 2.1282314913856348e-07, 3.202843331805323e-21, 0.0, 0.0, 0.0]
x0=-5: [-5, -3.626599233054984, -2.3248573504584265, -1.160272096653756, -0.3008189081993278, -0.008610991230440013, -2.1282314913856348e-07, -3.202843331805323e-21, 0.0, 0.0, 0.0]
x0=1: [1, 0.21460183660255172, 0.003206279186919486, 1.0987024024085301e-08, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]
x0=-1: [-1, -0.21460183660255172, -0.003206279186919486, -1.0987024024085301e-08, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]
x0=0.1: [0.1, 0.0003313475088379675, 1.2126342952781949e-11, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]

=== Problem 6: Newton's Method ===

x0=0.5: [0.5, -0.07955951125100758, 0.00033530220400547484, -2.5131473616567257e-11]
x0=1: [1, -0.5707963267948966, 0.1168599039989131, -0.001061022117044716, 7.963096044106416e-10, 0.0]
x0=1.3: [1.3, -1.16162088448854, 0.8588963926230877, -0.37424067175856535, 0.03401887344648524, -2.624025442319461e-05, 1.2045171040057576e-14]
x0=1.4: [1.4, -1.4136186488037423, 1.4501293146283372, -1.5506259756377534, 1.8470540841501895, -2.893562393142409, 8.710325846983174, -103.2497737719099, 16540.563827238522, -429721482.8964048, 2.9006411728117766e+17, -1.3216239235109455e+35, 2.7436939143447383e+70, -1.182472901778772e+141, 2.196353654303044e+282]
x0=1.35: [1.35, -1.2840911496321357, 1.1241231064736947, -0.7858718810026537, 0.2915539773939717, -0.016251001443270185, 2.861054894189724e-06, -1.561293480026489e-17]
x0=1.375: [1.375, -1.347968866721887, 1.2789789869675205, -1.1122234430068465, 0.7634878511218026, -0.26869470864448597, 0.012751424759622154, -1.3821995795988001e-06, 1.7603462226312497e-18]
x0=1.3875: [1.3875, -1.3805717848504104, 1.3624466011998384, -1.3156725353789922, 1.1992537814074191, -0.9360134511626532, 0.4755041725235516, -0.06871397435808735, 0.0002160898993932986, -6.726856132668532e-12]
x0=1.39375: [1.39375, -1.3970396667006335, 1.4057521026438284, -1.4289751631862135, 1.491933904662637, -1.670391614688375, 2.238682098948238, -4.67896175447038, 26.460614048654975, -1048.4395706296523, 1724564.1209864537, -4671735533049.547, 3.4282807160676847e+25, -1.846173992436943e+51, 5.353836871379154e+102, -4.502462928340956e+205]
x0=1.390625: [1.390625, -1.3887918453035462, 1.3839665146401119, -1.3713106600031115, 1.3384309233463587, -1.2551285528306213, 1.0576670034398776, -0.6656850752385362, 0.18190186721262314, -0.00398636383916437, 4.2231661168123935e-08, -4.632211430296955e-23]
x0=1.3921875: [1.3921875, -1.3929122849983742, 1.394825958850944, -1.3998858751512677, 1.4133149205038582, -1.4493092747420264, 1.5483268863791837, -1.839945870781043, 2.865421021620741, -8.50992451219739, 98.22803139261353, -14961.322959341918, 351578989.6271647, -1.9416265542604474e+17, 5.921766554923411e+34, -5.508361608153409e+69, 4.766117692722094e+139, -3.5682017503789583e+279]

=== Problem 7: Secant Method ===

(x0,x1)=(0.5,1): [0.5, 1, -0.22050786341340456, 0.04374178346840507, -0.0005590788727972557, 3.518302320553021e-07, -3.663402493803771e-14]
(x0,x1)=(1,1.3): [1, 1.3, -0.8166140322760402, 0.08934518284419957, -0.014969227564502127, 3.307052701224597e-05, -2.464518613425298e-09, 8.983814245494484e-19]
(x0,x1)=(1.4,1.5): [1.4, 1.5, -1.5477170164297447, -0.012802732833273378, 0.007159571815577682, -1.7240614202246318e-07, 2.9457045373248696e-12]
(x0,x1)=(10,11): [10, 11, -153.29958955293023, -68.87946259885489, 16366.080206047482, 8110.611472565421, -208481329.7765721, -104232518.38222654, 3.4134241555140492e+16, 1.7067120673333654e+16]