A1

May 12, 2025

```python
[1]: import numpy as np
     import matplotlib.pyplot as plt
```

```python
[44]: x_inf = 5
      y_inf = 3
      t = np.linspace(0, 10, 1000)
      tau = 2.24

      x = x_inf * (1 - np.exp(-t / tau))
      y = y_inf * (1 - np.exp(-t / tau))
      xdd = -x_inf * (1 / tau**2) * np.exp(-t / tau)
      ydd = -y_inf * (1 / tau**2) * np.exp(-t / tau)
      theta = np.arctan2(xdd, 1 - ydd)
      for i in range(len(theta)):
          print(f"[{i}] = {xd[i]}\t{yd[i]}\t{theta[i]}")

      dtheta_dt = np.gradient(theta, t)
      ddtheta_dt = np.gradient(dtheta_dt, t)

      # Total thrust
      U = np.sqrt(xdd**2 + (ydd + 1)**2)

      # Compute control inputs
      u1 = 0.5 * (U + ddtheta_dt)
      u2 = 0.5 * (U - ddtheta_dt)

      plt.close()
      # Plot trajectory
      fig, (ax1, ax2) = plt.subplots(2, 1, figsize=(6, 5), sharex=True)
      ax1.plot(t, x, label="x_d(t)")
      ax1.plot(t, y, label="y_d(t)")
      # ax1.plot(t, theta, label=r"$\theta$(t)")
      ax1.set_ylabel("Position")
      ax1.set_title("Straight-Line Asymptotic Trajectory (tau = {:.2f})".format(tau))
      ax1.legend()
      ax1.grid()

      # Plot control inputs
```

```
ax2.plot(t, u1, label="u1(t)")
ax2.plot(t, u2, label="u2(t)")
ax2.axhline(1, color='r', linestyle='--')
ax2.axhline(-1, color='r', linestyle='--')
ax2.set_ylabel("Control Input")
ax2.set_ylim(0, 1.05)
ax2.legend()
ax2.grid()

plt.tight_layout()
plt.show()

# Plot xy path
fig2, (ax3) = plt.subplots(1, 1, figsize=(4, 4))
ax3.plot(xd, yd)
ax3.set_xlabel("x(t)")
ax3.set_ylabel("y(t)")
ax3.set_title("XY Trajectory")
ax3.axis('equal')
ax3.grid()

plt.tight_layout()
plt.show()
```

```
[0] = 0.0          0.0         -0.5576121133954905
[1] = 0.021713606309456956      0.013028163785674174     -0.5563561296341896
[2] = 0.04333291647912185       0.02599974988747311      -0.5550996074446317
[3] = 0.06485834001084545       0.03891500400650727      -0.5538425630048904
[4] = 0.0862902846281266        0.05177417077687596      -0.552585012523525
[5] = 0.1076291562838344        0.06457749377030064      -0.5513269722386587
[6] = 0.12887535916789816       0.0773252155007389       -0.5500684584170528
[7] = 0.15002929571496293       0.09001757742897776      -0.5488094873531766
[8] = 0.1710913666120123        0.10265481996720738      -0.5475500753682737
[9] = 0.19206197080595733       0.1152371824835744       -0.5462902388094243
[10] = 0.21294150551119495      0.12776490330671697      -0.5450299940486047
[11] = 0.23373036621712917      0.1402382197302775       -0.5437693574817434
[12] = 0.2544289466956656       0.15265736801739938      -0.5425083455277722
[13] = 0.2750376390086673       0.16502258340520004      -0.541246974627677
[14] = 0.29555683351538076      0.17733410010922845      -0.5399852612435436
[15] = 0.3159869188798331       0.18959215132789986      -0.5387232218576009
[16] = 0.33632828207819154      0.20179696924691493      -0.5374608729712619
[17] = 0.35658130840609203      0.21394878504365522      -0.5361982311041615
[18] = 0.3767463814859412       0.22604782889156472      -0.5349353127931926
[19] = 0.39682388327417883      0.2380943299645073       -0.5336721345915386
[20] = 0.41681419406851494      0.25008851644110897      -0.5324087130677052
[21] = 0.43671769251513226      0.26203061550907936      -0.5311450648045485
[22] = 0.45653475561586 0.273920853369516          -0.5298812063983022
[23] = 0.47626575873531196      0.2857594552411872       -0.528617154457603
```

2

```
[24] = 0.4959110756079982        0.2975466453647989      -0.5273529256025139
[25] = 0.5154710783454053        0.30928264700724317     -0.5260885364635451
[26] = 0.5349461374430414        0.32096768246582486     -0.5248240036806759
[27] = 0.5543366217874579        0.33260197307247474     -0.5235593439023726
[28] = 0.5736428986632336        0.34418573919794015     -0.5222945737846066
[29] = 0.5928653337599332        0.35571920025595993     -0.5210297099898719
[30] = 0.6120042911790324        0.36720257470741946     -0.5197647691862001
[31] = 0.6310601334408178        0.3786360800644907      -0.5184997680461765
[32] = 0.6500332214912496        0.3900199328947498      -0.5172347232459542
[33] = 0.6689239147088011        0.40135434882528065     -0.5159696514642683
[34] = 0.6877325709112642        0.4126395425467585      -0.5147045693814494
[35] = 0.70645954636253 0.42387572781751803     -0.5134394936784378
[36] = 0.7251051957793325        0.4350631174675995      -0.5121744410357959
[37] = 0.7436698723379709        0.44620192340278253     -0.5109094281327229
[38] = 0.7621539276809974        0.45729235660859846     -0.5096444716460672
[39] = 0.7805577119238805        0.4683346271543283      -0.5083795882493417
[40] = 0.7988815736616323        0.47932894419697936     -0.5071147946117369
[41] = 0.8171258599754161        0.49027551598524965     -0.505850107397137
[42] = 0.8352909164391165        0.5011745498634699      -0.5045855432631353
[43] = 0.8533770871258889        0.5120262522755333      -0.5033211188600508
[44] = 0.8713847146146736        0.5228308287688042      -0.5020568508299459
[45] = 0.8893141399966864        0.5335884839980118      -0.5007927558056452
[46] = 0.9071657028818791        0.5442994217291275      -0.4995288504097555
[47] = 0.9249397414053723        0.5549638448432234      -0.4982651512536873
[48] = 0.9426365922338603        0.5655819553403162      -0.4970016749366778
[49] = 0.9602565905719862        0.5761539543431917      -0.49573843804481565
[50] = 0.9778000701686951        0.586680042101217       -0.49447545715006724
[51] = 0.995267363323552         0.5971604179941312      -0.49321274880930516
[52] = 1.012658800893037         0.6075952805358222      -0.4919503295633389
[53] = 1.0299747122968146        0.6179848273780887      -0.4906882159359471
[54] = 1.0472154255239703        0.6283292553143821      -0.48942642443291295
[55] = 1.06438126671392232       0.638628760283534       -0.48816497154106164
[56] = 1.0814725622891164        0.6488835373734698      -0.4869038737273001
[57] = 1.098489634708168         0.6590937808249008      -0.4856431474376602
[58] = 1.1154328067250108        0.6692596840350065      -0.48438280909634396
[59] = 1.1323023992684922        0.6793814395610953      -0.48312287510477275
[60] = 1.1490987318737549        0.689459239124253       -0.48186336184063844
[61] = 1.1658221226882919        0.6994932736129752      -0.4806042856569586
[62] = 1.1824728884779674        0.7094837330867804      -0.47934566288113495
[63] = 1.1990513446330209        0.7194308067798125      -0.4780875098140149
[64] = 1.2155578051740408        0.7293346831044244      -0.4768298427289569
[65] = 1.2319925827579103        0.7391955496547462      -0.475572677870900133
[66] = 1.2483559886837319        0.7490135932102392      -0.4743160314554366
[67] = 1.264648332898723         0.7587889997392337      -0.4730599196678891
[68] = 1.2808699240040855        0.7685219544024513      -0.47180435866239123
[69] = 1.2970210692608526        0.7782126415565115      -0.4705493645609734
[70] = 1.3131020745957094        0.7878612447574257      -0.4692949534526521
[71] = 1.329113244606786         0.7974679467640716      -0.46804114139252395
```

3

```
[72] = 1.345054882569428        0.8070329295416568      -0.4667879444008644
[73] = 1.36092729044194 0.816556374265164       -0.46553537846223064
[74] = 1.3767307688713064       0.8260384613227839      -0.46428345952457045
[75] = 1.3924656171988863       0.8354793703193318      -0.4630322034983339
[76] = 1.4081321334660806       0.8448792800796484      -0.4617816262555926
[77] = 1.4237306144199824       0.8542383686519894      -0.46053174362916205
[78] = 1.4392613555189921       0.8635568133113952      -0.45928257141173
[79] = 1.4547246509384182       0.8728347905630509      -0.4580341253549906
[80] = 1.4701207935760474       0.8820724761456284      -0.4567864211687828
[81] = 1.485450075057693        0.8912700450346159      -0.4555394745202356
[82] = 1.5007127857427194       0.9004276714456316      -0.45429330103291793
[83] = 1.5159092147295394       0.9095455288377237      -0.4530479162859953
[84] = 1.5310396498610934       0.918623789916656       -0.45180333581339077
[85] = 1.5461043777303  0.9276626266381801      -0.4505595751029539
[86] = 1.5611036836854841       0.9366622102112905      -0.4493166495956342
[87] = 1.5760378518357836       0.9456227111014702      -0.4480745746846609
[88] = 1.5909071650565276       0.9545442990339166      -0.44683336571472976
[89] = 1.6057119049945983       0.963427142996759       -0.44559303798119565
[90] = 1.6204523520737635       0.9722714112442581      -0.44435360672927177
[91] = 1.635128785499988        0.9810772712999928      -0.44311508715323467
[92] = 1.6497414832667234       0.9898448899600341      -0.4418774943956373
[93] = 1.6642907221601737       0.9985744332961043      -0.44064084354652744
[94] = 1.6787767777645373       1.0072660666587225      -0.43940514964267385
[95] = 1.693199924467227        1.0159199546803361      -0.4381704276667982
[96] = 1.7075604354640672       1.0245362612784403      -0.436936692546681544
[97] = 1.7218585827644701       1.033115149658682       -0.4357039591550798
[98] = 1.7360946371965857       1.0416567823179514      -0.43447224230763865
[99] = 1.7502688684124335       1.05016132104746        -0.4332415567634934
[100] = 1.7643815448930096      1.0586289269358056      -0.432011917223868
[101] = 1.778432933953371       1.0670597603720227      -0.43078333833148386
[102] = 1.792423301747701       1.0754539810486206      -0.42955583466984304
[103] = 1.8063529132743483      1.083811747964609       -0.4283294207625189
[104] = 1.8202220323808493      1.0921332194285096      -0.4271041110724538
[105] = 1.8340309217689232      1.100418553061354       -0.42587992000126457
[106] = 1.847779842999448       1.1086679057996687      -0.42465686188855634
[107] = 1.8614690564974175      1.1168814338984503      -0.42343495101124295
[108] = 1.8750988215568698      1.1250592929341219      -0.42221420158287615
[109] = 1.8886693963458046      1.1332016378074827      -0.4209946277529826
[110] = 1.902810037911067       1.1413086227466402      -0.41977624360640775
[111] = 1.9156340021832214      1.1493804013099327      -0.4185590631626696
[112] = 1.9290285439813952      1.1574171263888373      -0.4173431003753186
[113] = 1.942364917018109       1.1654189502108654      -0.4161236913130674
[114] = 1.9556433739040795      1.1733860243424479      -0.4149148832503647
[115] = 1.968864166153006       1.1813184996918036      -0.4137026564843871
[116] = 1.9820275441863344      1.1892165265118007      -0.4124917025168258
[117] = 1.9951337573379995      1.1970802544027999      -0.41128203496209165
[118] = 2.0081830538591476      1.2049098323154888      -0.41007366736496503
[119] = 2.0211756809228403      1.2127054085537043      -0.408866613200014
```

4

```
[120] = 2.034111884628736      1.2204671307772417     -0.4076608858710212
[121] = 2.04699191000775       1.22819514600465       -0.4064564987104198
[122] = 2.059816001026697      1.235889600616018      -0.4052534649787371 5
[123] = 2.0725844005929113     1.2435506403557466     -0.40405179786404727
[124] = 2.0852973505588492     1.2511784103353094     -0.40285151048143214
[125] = 2.0979550917266683     1.2587730550360008     -0.4016526158724515
[126] = 2.1105578638527906     1.2663347183116742     -0.4004551270046208
[127] = 2.123105905652442      1.2738635433914651     -0.3992590567708992
[128] = 2.1355994548041752     1.281359672882505      -0.398064417989184
[129] = 2.1480387479543706     1.2888232487726223     -0.3968712234018167
[130] = 2.160424020721719      1.2962544124330315     -0.3956794856750953
[131] = 2.1727555077016873     1.3036533046210126     -0.3944892173987962
[132] = 2.1850334424709565     1.311020065482574      -0.3933004310857065
[133] = 2.1972580575918514     1.318354834555111      -0.39211313917116175
[134] = 2.209429584616742      1.3256577507700453     -0.390927354012596
[135] = 2.221548254092432      1.3329289524554593     -0.38974308788909856
[136] = 2.233614295564524      1.3401685773387146     -0.38856035300098063
[137] = 2.245627937581769      1.3473767625490614     -0.3873791614693499
[138] = 2.257589407700392      1.3545536446202353     -0.38619952533569546
[139] = 2.269498932488408      1.3616993594930449     -0.3850214565614796
[140] = 2.281356737529908      1.368814042517945      -0.38384496702774124
[141] = 2.2931630474293345     1.375897828457601      -0.3826700685347049
[142] = 2.3049180858157365     1.3829508514894417     -0.3814967728014024
[143] = 2.3166220753470035     1.389973245208202      -0.38032509146529936
[144] = 2.328275237714084      1.3969651426284506     -0.3791550360819349
[145] = 2.3398777936451856     1.4039266761871112     -0.3779866181245663
[146] = 2.3514299629099518     1.4108579777459709     -0.37681984898382576
[147] = 2.3629319643236313     1.4177591785941788     -0.37565473996738397
[148] = 2.3743840157512173     1.4246304094507305     -0.3744913022996236
[149] = 2.3857863341115766     1.4314718004669458     -0.3733295471213212
[150] = 2.3971391353815577     1.4382834812289345     -0.3721694854893388
[151] = 2.408442634600081      1.4450655807600485     -0.3710111283763231
[152] = 2.4196970458722147     1.4518182275233287     -0.3698544866704148
[153] = 2.4309025823732267     1.458541549423936      -0.3686995711749662
[154] = 2.442059456352625      1.4652356738115748     -0.36754639260826727
[155] = 2.453167879138176      1.4719007274829057     -0.3663949616032816
[156] = 2.4642280611399108     1.4785368366839466     -0.36524528870739015
[157] = 2.475240211854106      1.4851441271124637     -0.3640973843821442
[158] = 2.486204539867256      1.4917227239203537     -0.3629512590030271
[159] = 2.497121252860021      1.4982727517160124     -0.36180692285922483
[160] = 2.5079905576111616     1.504794334566697      -0.3606643861534052
[161] = 2.5188126600014584     1.511287596000875      -0.35952365900015053
[162] = 2.529587765017606      1.5177526590105634     -0.3583847514325287
[163] = 2.540316076756101      1.5241896460536604     -0.3572476733883504
[164] = 2.550997798427104      1.5305986790562627     -0.3561124347235 3016
[165] = 2.5616331323582937     1.536979879414976      -0.35497904520513573
[166] = 2.5722222799986927     1.5433333679992156     -0.35384751451257335
[167] = 2.582765441922489      1.5496592651534933     -0.3527178522374272 4
```

5

```
[168] = 2.593262817832831        1.5559576906996986       -0.3515900678833077
[169] = 2.603714606565613        1.562228763939368        -0.35046417086570764
[170] = 2.61412100609324         1.5684726036559442       -0.34934017051186705
[171] = 2.6244822135283794       1.5746893281170278       -0.34821807606064675
[172] = 2.6347984251276912       1.5808790550766147       -0.3470978966624097
[173] = 2.6450698362955483       1.587041901777329        -0.3459796413789107
[174] = 2.6552966415877366       1.593177984952642        -0.34486331918319496
[175] = 2.665479034715142        1.5992874208290853       -0.3437489389595042
[176] = 2.6756172085474157       1.6053703251284492       -0.342636509503191113
[177] = 2.685711355116631        1.6114268130699787       -0.3415260395206423
[178] = 2.6957616656209202       1.6174569993725523       -0.3404175376292088
[179] = 2.7057683304280933       1.623460998256856        -0.33931101235714495
[180] = 2.715731539079248        1.6294389234475488       -0.3382064721435551
[181] = 2.725651480292357        1.6353908881754142       -0.33710392533834876
[182] = 2.7355283419658427       1.6413170051795056       -0.33600338020220244
[183] = 2.745362311182138        1.6472173867092827       -0.33490484490653094
[184] = 2.7551535742112288       1.6530921445267373       -0.333808327533465
[185] = 2.764902316514183        1.6589413899085097       -0.3327138360758376
[186] = 2.774608722746661        1.6647652336479966       -0.33162137843717754
[187] = 2.784272976762417        1.6705637860574503       -0.3305309624317109
[188] = 2.793895261616778        1.6763371569700667       -0.3294425957843696
[189] = 2.803475759570114        1.6820854557420686       -0.32835628613080825
[190] = 2.8130146520912893       1.6878087912547735       -0.3272720410174277
[191] = 2.8225121198610976       1.6935072719166584       -0.32618986790140636
[192] = 2.8319683427756877       1.6991810056654124       -0.325109774150739
[193] = 2.8413834999499694       1.7048300999699815       -0.3240317670442825
[194] = 2.8507577697210063       1.7104546618326038       -0.3229558537718092
[195] = 2.860091329651394        1.7160547977908365       -0.32188204143406696
[196] = 2.8693843565326227       1.7216306139195736       -0.3208103370428467
[197] = 2.8786370263884264       1.7271822158330559       -0.3197407475210571
[198] = 2.887849514478119        1.7327097086868715       -0.3186732797028056
[199] = 2.897021995299909        1.7382131971799453       -0.31760794033348727
[200] = 2.9061546425942106       1.7436927855565265       -0.31654473606987965
[201] = 2.915247629346929        1.7491485776081577       -0.3154836734802453
[202] = 2.924301127792743        1.7545806766756455       -0.31442475904443973
[203] = 2.933315309418361        1.7599891856510168       -0.3133679991540277
[204] = 2.942290344965776        1.7653742069794653       -0.3123134001124047
[205] = 2.951226404435492        1.7707358426612951       -0.3112609681349259
[206] = 2.960123657089752        1.776074194253851        -0.3102107093490406
[207] = 2.968982271455738        1.7813893628734427       -0.309162629794434 26
[208] = 2.977802415328765        1.7866814491972591       -0.30811673542317586
[209] = 2.9865842557754623       1.7919505534652775       -0.30707303209987213
[210] = 2.995327959136933        1.7971967754821598       -0.30603152560182756
[211] = 3.0040336910319088       1.8024202146191453       -0.3049922216192109
[212] = 3.012701616359883        1.8076209698159298       -0.30395512575522743
[213] = 3.021331899304239        1.8127991395825436       -0.30292024352629726
[214] = 3.029924703335358        1.8179548220012145       -0.3018875803622398
[215] = 3.0384801912137105       1.8230881147282263       -0.30085714160646376
```

6

```
[216] = 3.0469985249929477          1.8281991149957686          -0.29982893251616305
[217] = 3.055479866022966           1.8332879196137797          -0.29880295826251846
[218] = 3.0639243749529643          1.8383546249717786          -0.2977792239309046
[219] = 3.0723322117344853          1.8433993270406912          -0.29675577345211032
[220] = 3.0807035356244494          1.8484221213746697          -0.2957384949475209
[221] = 3.0890385051881664          1.8534231031128998          -0.29472151003941316
[222] = 3.097337278302341           1.8584023669814047          -0.2937067845411135
[223] = 3.1056000121580665          1.8633600072948397          -0.29269432311226723
[224] = 3.113826863263794           1.8682961179582767          -0.2916841303280715
[225] = 3.1220179874483067          1.873210792468984           -0.29067621067952
[226] = 3.130173539863664           1.8781041239181986          -0.289670568573652
[227] = 3.1382936749881463          1.8829762049928878          -0.2886672083338076
[228] = 3.1463785466291725          1.8878271279775036          -0.28766613419988735
[229] = 3.1544283079262243          1.8926569847557344          -0.28666735032861623
[230] = 3.1624431113537375          1.8974658668122426          -0.2856708607938134
[231] = 3.1704231087239974          1.9022538652343985          -0.28467666958666527
[232] = 3.178368451190007           1.907021070714004           -0.28368478061600494
[233] = 3.186279289248356           1.9117675735490136          -0.2826951977085948
[234] = 3.19415577274206970         1.916493463645242           -0.2817079246094137
[235] = 3.2019980508634474          1.9211988305180683          -0.2807229649819496
[236] = 3.209806272156884           1.9258837632941306          -0.2797403224084953
[237] = 3.217580584521693           1.930548350713016           -0.27876000039044896
[238] = 3.225321135214899           1.9351926811289395          -0.27778200234861905
[239] = 3.233028070854031           1.9398168425124185          -0.27680633162353285
[240] = 3.2407015374198984          1.9444209224519389          -0.2758329914757496
[241] = 3.248341680259358           1.9490050081556147          -0.2748619850861768
[242] = 3.2559486440880647          1.9535691864528388          -0.27389331555639157
[243] = 3.263522572993214           1.9581135437959283          -0.27292698590896447
[244] = 3.271063610436271           1.9626381662617627          -0.2719629990877882
[245] = 3.2785718992556867          1.967143139553412           -0.2710013579584094
[246] = 3.2860475816696066          1.971628549001764           -0.27004206530836417
[247] = 3.29349079927856            1.976094479567136           -0.269085123847517
[248] = 3.3009016930681465          1.980541015840888           -0.26813053620840366
[249] = 3.3082804034117035          1.9849682420470223          -0.26717830494657685
[250] = 3.3156270700729658          1.9893762420437793          -0.2662284325409555
[251] = 3.3229418322087145          1.9937650993252287          -0.26528092139417736
[252] = 3.3302248283714104          1.998134897022846           -0.26433577383295426
[253] = 3.33747619651182            2.002485717907092           -0.2633929921084317
[254] = 3.3446960739816287          2.0068176443889776          -0.26245257839655
[255] = 3.351884597536041           2.0111307585216247          -0.2615145347984092
[256] = 3.3590419033363723          2.015425142001823           -0.2605788633406371
[257] = 3.3661681269526267          2.019700876171576           -0.25964556597575955
[258] = 3.3732634033660647          2.023958042019639           -0.2587146445825738
[259] = 3.380327866971764           2.0281967201830584          -0.25778610096652443
[260] = 3.387361651581159           2.032416990948695           -0.25685993686008207
[261] = 3.394364890424579           2.036618934254747           -0.255593615392312463
[262] = 3.4013377161537717          2.040802629692263           -0.25501475373 43321
[263] = 3.408280260844414           2.0449681565066484          -0.2540957378365172
```

7

```
[264] = 3.415192655998618      2.0491155935991707     -0.2531791076471246
[265] = 3.4220750325474136     2.053245019528448      -0.2522648645485112
[266] = 3.42892752085324       2.057356512511944      -0.2513530098433941
[267] = 3.4357502507124025     2.061450150427442      -0.2504435447642352
[268] = 3.442543351357542      2.0655260108145255     -0.24953647047363803
[269] = 3.449306951460076      2.0695841708760456     -0.24863178806474756
[270] = 3.4560411791326375     2.073624707479582      -0.24772949856165102
[271] = 3.462746161931503      2.077647697158902      -0.24682960291978148
[272] = 3.4694220268590077     2.0816532161154044     -0.2459321020263229
[273] = 3.4760689003659495     2.0856413402195697     -0.2450369967006166
[274] = 3.4826869083539878     2.089612145012393      -0.24414428769457025
[275] = 3.4892761761780253     2.0935657057068155     -0.24325397569306806
[276] = 3.4958368286485832     2.0975020971891496     -0.24236606131438237
[277] = 3.5023689900341646     2.101421394020499      -0.2414805451105874
[278] = 3.5088727840636116     2.1053236704381666     -0.24059742756797364
[279] = 3.515348333928443      2.109209000357066      -0.2397167091074647
[280] = 3.521795762285195      2.1130774573711166     -0.23883839008503452
[281] = 3.528215191257736      2.116929114754642      -0.23796247079212635
[282] = 3.534606742439591      2.120764045463755      -0.2370889514560734
[283] = 3.5409705368962308     2.1245823221377385     -0.23621783224051962
[284] = 3.547306695167377      2.1283840171004265     -0.23534911324584262
[285] = 3.5536153372692816     2.1321692023615686     -0.23448279450957707
[286] = 3.5598965826969953     2.135937949618197      -0.23361887600683964
[287] = 3.5661505504266398     2.139690330255984      -0.23275735765075384
[288] = 3.5723773589176533     2.143426415350592      -0.23189823929287745
[289] = 3.578577126115039      2.1471462756690234     -0.23104152072362918
[290] = 3.5847499694515985     2.1508499816709588     -0.23018720167271692
[291] = 3.590896005850154      2.154537603510092      -0.22933528180956697
[292] = 3.597015351725764      2.1582092110354587     -0.22848576074375312
[293] = 3.6031081229879325     2.1618648737927595     -0.22763863802542725
[294] = 3.609174435042796      2.165504661025677      -0.22679391314574993
[295] = 3.6152144027953175     2.1691286416771907     -0.2259515855373217
[296] = 3.621228140651459      2.1727368843908756     -0.2251116545746152
[297] = 3.62721576252035       2.17632945751221       -0.22427411957440727
[298] = 3.6331773818164423     2.1799064290898658     -0.22343897979621136
[299] = 3.6391131114616613     2.183467866876997      -0.22260623444271094
[300] = 3.645023063887547      2.187013838332528      -0.22177588266019235
[301] = 3.6509073510373744     2.190544410622425      -0.2209479235389788
[302] = 3.656766084368286      2.1940596506209715     -0.22012235611386366
[303] = 3.662599374853394      2.197559624912036      -0.21929917936454457
[304] = 3.6684073329838847     2.2010443997903306     -0.21847839221605725
[305] = 3.6741900687711144     2.2045140412626685     -0.2176599935392096
[306] = 3.6799476917486884     2.207968615049213      -0.21684398215101572
[307] = 3.685680310974541      2.211408186584724      -0.21603035681512994
[308] = 3.691388035032994      2.2148328210197965     -0.21521911624228054
[309] = 3.697070972036822      2.218242583222093      -0.21441025909070383
[310] = 3.702729229629293      2.2216375377775757     -0.21360378396657756
[311] = 3.7083629149862123     2.2250177489917276     -0.21279968942445432
```

8

```
[312] = 3.713972134817949        2.2283832808907693       -0.21199797396769499
[313] = 3.7195569953714602       2.231734197222876        -0.2111986360489 0127
[314] = 3.7251176024323005       2.2350705614593807       -0.21040167407034832
[315] = 3.7306540613266286       2.2383924367959773       -0.20960708638441708
[316] = 3.7361664769232017       2.241699886153921        -0.20881487129402593
[317] = 3.7416549536353583       2.244992972181215        -0.208025027053062
[318] = 3.747119595423002        2.248271757253801        -0.2072375518668119
[319] = 3.752560505794565        2.251536303476739        -0.20645244389239228
[320] = 3.7579777878089744       2.2547866726853845       -0.20566970123917933
[321] = 3.763371544077598        2.2580229264465586       -0.20488932196923776
[322] = 3.7687418767661915       2.2612451260597153       -0.20411130409774997
[323] = 3.774088887596836        2.2644533325581016       -0.20333564559344294
[324] = 3.7794126778498582       2.267647606709915        -0.20256234437901618
[325] = 3.784713348365755        2.2708280090194526       -0.20179139833156756
[326] = 3.7899909995470997       2.27399459972826         -0.2010228052830192
[327] = 3.7952457313604464       2.277147438816268        -0.20025656302054187
[328] = 3.800477643338222        2.280286586002933        -0.19949266928697956
[329] = 3.805686834580611        2.2834121007483668       -0.19873112178127197
[330] = 3.810873403757435        2.286524042254461        -0.19797191815887688
[331] = 3.816037449110018        2.2896224694660106       -0.1972150560321916
[332] = 3.821179068453051        2.2927074410718307       -0.19646053297097274
[333] = 3.826298359176443        2.2957790155058655       -0.19570834650275593
[334] = 3.8313954182471637       2.2988372509482984       -0.19495849411327362
[335] = 3.8364703422110855       2.3018822053266517       -0.19421097324687264
[336] = 3.841523227194807        2.304913936316884        -0.19346578130693004
[337] = 3.846554168907476        2.307932501344485        -0.19272291565626812
[338] = 3.851563262642601        2.3109379575855606       -0.19198237361756817
[339] = 3.85655060327986         2.313930361967916        -0.19124415247378326
[340] = 3.8615162852868936       2.316909771172136        -0.1905082494685496
[341] = 3.866460402721095        2.3198762416326573       -0.1897746618065967
[342] = 3.871383049231394        2.3228298295388363       -0.18904338665415646
[343] = 3.876284318060028        2.325770590836017        -0.1883144211393709
[344] = 3.8811643020443096       2.328698581226586        -0.18758776235269836
[345] = 3.886023093618385        2.331613856171031        -0.1868634073473189
[346] = 3.8908607848149845       2.3345164708889907       -0.1861413531395377
[347] = 3.8956774672671655       2.3374064803602996       -0.18542159670918762
[348] = 3.900473232210051        2.3402839393260306       -0.1847041350000302
[349] = 3.905248170482551        2.3431489022895304       -0.18398896492015504
[350] = 3.910002372529091        2.3460014235174547       -0.1832760833423781
[351] = 3.91473592840132         2.348841557040792        -0.18256548710463832
[352] = 3.9194489277598183       2.351669356655891        -0.1818571730103927
[353] = 3.9241414598757958       2.3544848759254773       -0.18115113782901016
[354] = 3.9288136136327805       2.3572881681796685       -0.1804473782961635
[355] = 3.9334654775283058       2.3600792865169833       -0.17974589111422032
[356] = 3.938097139675585        2.36285828 3805351        -0.17904667295263174
[357] = 3.9427086878051787       2.365625212683107        -0.17834972044832023
[358] = 3.947300209266661        2.3683801255599963       -0.17765503020606524
[359] = 3.9518717910302668       2.3711230746181604       -0.176962598798 88776
```

```
[360]  = 3.9564235196885478        2.3738541118131287       -0.1762724227684328
[361]  = 3.960955481458006         2.3765732888748037       -0.17558449862535036
[362]  = 3.9654677621807304        2.3792806573084384       -0.174898822849675
[363]  = 3.96996044732602          2.3819762683956123       -0.17421539189120347
[364]  = 3.9744336219920067        2.384660173195204        -0.1735342021698705
[365]  = 3.978887370907263         2.387332422544358        -0.17285525007612346
[366]  = 3.9833217784324098        2.389993067059446        -0.1721785319712944
[367]  = 3.9877369285617137        2.392442157137028        -0.1715040441879715
[368]  = 3.9921329049246763        2.3952797429548056       -0.1708317830303676
[369]  = 3.99650979078762          2.3979058744725723       -0.1701617447746879
[370]  = 4.000867669055267         2.4005206014331604       -0.16949392566949523
[371]  = 4.005206622272304         2.4031239733633822       -0.16882832193607397
[372]  = 4.00952673262495          2.4057160395749704       -0.16816492976879197
[373]  = 4.013828081942515         2.4082968491655095       -0.16750374533546067
[374]  = 4.018110751698944         2.4108664510193663       -0.1668447647776933
[375]  = 4.022374823014363         2.413424893808618        -0.16618798421126177
[376]  = 4.026620376656619         2.4159722259939715       -0.16553339972645056
[377]  = 4.030847493042804         2.418508495825683        -0.16488100738841038
[378]  = 4.035056252240783         2.4210337513444697       -0.16423080323750847
[379]  = 4.039246733970706         2.423548040382424        -0.16358278328967776
[380]  = 4.0434190176065234        2.4260514105639137       -0.16293694353676422
[381]  = 4.047573182177484         2.4285439093064904       -0.1622932799468719
[382]  = 4.051709306369638         2.4310255838217825       -0.16165178846470646
[383]  = 4.05582746852732          2.433496481116392        -0.1610124650119164
[384]  = 4.05992774665464          2.435956647992784        -0.160375305487433
[385]  = 4.064010218416957         2.4384061310501743       -0.15974030576780746
[386]  = 4.068074961142351         2.4408449766854106       -0.15910746170754683
[387]  = 4.072122051823087         2.443273231093852        -0.1584767691394477
[388]  = 4.076151567117075         2.445690940270245        -0.1578482238749281
[389]  = 4.0801635833493215        2.4480981500095926       -0.15722182170435717
[390]  = 4.084158176513372         2.450494905908023        -0.15659755839738312
[391]  = 4.088354422272757         2.452881253363654        -0.1559754297032592
[392]  = 4.092095395962419         2.455257237577451        -0.15535543135116758
[393]  = 4.096038172590141         2.457622903554085        -0.1547375590505414
[394]  = 4.099963826837972         2.4599782961027836       -0.15412180849138482
[395]  = 4.103872433063635         2.462323459838181        -0.15350817534459085
[396]  = 4.107764065301937         2.4646584391811617       -0.15289665526225762
[397]  = 4.111638797266173         2.466983278359704        -0.15228724387800233
[398]  = 4.115496702349525         2.469298021409715        -0.15167993680727326
[399]  = 4.119337853626445         2.4716027121758666       -0.15107472964766
[400]  = 4.123162323854045         2.4738973943124267       -0.1504716179792013
[401]  = 4.126970185473471         2.4761821112840825       -0.14987059736469144
[402]  = 4.130761510611281         2.4784569063667683       -0.149271663349984
[403]  = 4.134536371080803         2.4807218226484817       -0.1486748114642939
[404]  = 4.138294838383504         2.482976903030102        -0.1480800372204978
[405]  = 4.142036983710337         2.4852221902262026       -0.1474873361154319
[406]  = 4.1457628779430955        2.4874577267658573       -0.14689670363018792
[407]  = 4.149472591655749         2.489683554993449        -0.14630813523040728
```

10

```
[408]  = 4.153166195115786      2.491899717069472     -0.14572162636657301
[409]  = 4.156843758285546      2.494106254971327     -0.14513717247429994
[410]  = 4.160505350823536      2.4963032104941214    -0.1445547689746223
[411]  = 4.164151042085758      2.4984906252514554    -0.14397441127428015
[412]  = 4.167780901127022      2.5006685406762132    -0.14339609476600307
[413]  = 4.17139499670225       2.5028369980213503    -0.1428198148287922
[414]  = 4.174993397267781      2.5049960383606686    -0.1422455668282002
[415]  = 4.178576170982667      2.5071457025896002    -0.14167334611660917
[416]  = 4.182143385709965      2.509286031425979     -0.14110314803350646
[417]  = 4.18569510901802       2.5114170654108126    -0.14053496790575887
[418]  = 4.189231408181751      2.5135388449090503    -0.13996880104788428
[419]  = 4.1927523501839135     2.515651410110348     -0.13940464276232178
[420]  = 4.196258001716381      2.5177548010298287    -0.13884248833969934
[421]  = 4.199748429181403      2.5198490575088415    -0.1382823330590999
[422]  = 4.203223698692859      2.521934219215715     -0.13772417218832536
[423]  = 4.206683876077516      2.52401032564651      -0.13716800098415813
[424]  = 4.210129026876276      2.5260774161257658    -0.1366138146926215
[425]  = 4.213559216345411      2.5281355298072468    -0.1360616085492372
[426]  = 4.216974509457806      2.530184705674684     -0.13551137777928154
[427]  = 4.220374970904187      2.5322249825425125    -0.1349631175980395
[428]  = 4.2237606650943444     2.5342563990566065    -0.13441682321105625
[429]  = 4.227131656158355      2.536278993695013     -0.13387248981438768
[430]  = 4.230488007947799      2.5382928047686795    -0.13333011259484803
[431]  = 4.233829784036965      2.540297870422179     -0.13278968673025623
[432]  = 4.237157047724056      2.542294228634433     -0.13225120738967988
[433]  = 4.240469862032389      2.544281917219433     -0.13171466973367738
[434]  = 4.243768289711587      2.5462609738269526    -0.131180068914538
[435]  = 4.247052393238774      2.548231435943264     -0.13064740007652043
[436]  = 4.250322234819746      2.5501933408918473    -0.13011665835608868
[437]  = 4.253577876390161      2.5521467258340964    -0.12958783888214676
[438]  = 4.256819379616708      2.554091627770025     -0.12906093677627076
[439]  = 4.260046805898272      2.5560280835389633    -0.12853594715293956
[440]  = 4.263260216367102      2.557956129820261     -0.12801286511976329
[441]  = 4.266459671889966      2.5598758031339797    -0.12749168577770992
[442]  = 4.269645233069304      2.5617871398415826    -0.12697240422133
[443]  = 4.272816960244378      2.5636901761466264    -0.12645501553897948
[444]  = 4.275974913492411      2.565584948095447     -0.12593951481304044
[445]  = 4.279119152629731      2.5674714915778387    -0.12542589712014035
[446]  = 4.282249737212896      2.5693498423277377    -0.12491415753136895
[447]  = 4.28536672653983       2.571220035923898     -0.12440429111249351
[448]  = 4.288470179650941      2.5730821077905643    -0.12389629292417217
[449]  = 4.29156015533024       2.5749360931981435    -0.12339015802216535
[450]  = 4.294636712106458      2.576782027263875     -0.12288588145754561
[451]  = 4.297699908254151      2.5786199449524907    -0.12238345827690475
[452]  = 4.3007498017948045     2.5804498810768823    -0.12188288352256056
[453]  = 4.303786450497932      2.582271870298759     -0.12138415223275995
[454]  = 4.306809911882171      2.584085947129303     -0.12088725944188168
[455]  = 4.309820243216373      2.5858921459298236    -0.12039220018063665
```

11

```
[456] = 4.312817501520684      2.5876905009124105     -0.11989896947626622
[457] = 4.31580174356763       2.5894810461405777     -0.11940756235273912
[458] = 4.318773025883188      2.5912638155299126     -0.11891797383094611
[459] = 4.32173140474786       2.5930388428487157     -0.11843019892889337
[460] = 4.324676936197734      2.5948061617186404     -0.1179442326618935
[461] = 4.327609676025554      2.596565805615332      -0.11746007004275501
[462] = 4.330529679781768      2.5983178078690607     -0.1169777060819704
[463] = 4.333437002775584      2.6000622016653505     -0.11649713578790159
[464] = 4.336331700076021      2.6017990200456125     -0.11601835416696452
[465] = 4.339213826512944      2.6035282959077666     -0.11554135622381113
[466] = 4.34208343667811       2.605250062006866      -0.115066136961510 48
[467] = 4.344940584926199      2.606964350955719      -0.11459269138172727
[468] = 4.347785325375842      2.6086711952255053     -0.1141210144848992
[469] = 4.35061771191065       2.61037062714639       -0.113651101270412 45
[470] = 4.353437798180232      2.612062678908139      -0.11318294673677518
[471] = 4.3562456376012095     2.6137473825607254     -0.11271654588178988
[472] = 4.359041283358234      2.6154247700149402     -0.1122518937027233
[473] = 4.361824788404989      2.6170948730429933     -0.11178898519647547
[474] = 4.364596205465194      2.6187577232791166     -0.11132781535974623
[475] = 4.367355587033607      2.6204133522201642     -0.11086837918920059
[476] = 4.370102985377013      2.622061791226208      -0.11041067168163264
[477] = 4.372838452535218      2.623703071521131      -0.10995468783412692
[478] = 4.375562040322035      2.625337224193221      -0.10950042264421908
[479] = 4.3782738003262605     2.626964280195756      -0.10904787111005428
[480] = 4.380973783912658      2.628584270347595      -0.10859702823054437
[481] = 4.383662042222928      2.6301972253337573     -0.10814788900552293
[482] = 4.386338626176678      2.6318031757060067     -0.10770044843589925
[483] = 4.389003586472382      2.633402151883429      -0.10725470152381049
[484] = 4.391656973588348      2.6349941841530087     -0.10681064327277186
[485] = 4.394298837783669      2.6365793026702016     -0.10636826868782599
[486] = 4.396929229099179      2.638157537459507      -0.10592757277568984
[487] = 4.399548197358395      2.6397289184150368     -0.10548855054490082
[488] = 4.402155792168467      2.6412934753010804     -0.10505119700596074
[489] = 4.4047520629211165     2.64285123775267       -0.10461550717147851
[490] = 4.407337058793566      2.6444022352761394     -0.10418147605631135
[491] = 4.409910828749478      2.645946497249687      -0.10374909867770414
[492] = 4.412473421539879      2.6474840529239274     -0.1033183700554276
[493] = 4.415024885704084      2.6490149314224505     -0.10288928521191468
[494] = 4.4175652695706145     2.650539161742369      -0.10246183917239565
[495] = 4.420094621258114      2.6520567727548685     -0.10203602696503139
[496] = 4.422612988676262      2.6535677932057573     -0.10161184362104554
[497] = 4.425120419526677      2.6550722517160064     -0.10118928417485502
[498] = 4.427616961303826      2.656570176782296      -0.10076834366419883
[499] = 4.430102661295918      2.658061596777551      -0.10034901713026591
[500] = 4.432577566585803      2.6595465399514824     -0.09993129961782084
[501] = 4.435041724051866      2.6610250344311197     -0.09951518617532892
[502] = 4.4374951803689076     2.6624971082213444     -0.09910067185507902
[503] = 4.4399379820090354     2.6639627892054216     -0.09868775171330543
```

```
[504] = 4.442370175242543      2.6654221051455256    -0.09827642081030839
[505] = 4.444791806138781      2.666875083683269     -0.0978666742105728
[506] = 4.447202920567039      2.6683217523402236    -0.09745850698288581
[507] = 4.449603564197404      2.6697621385184425    -0.09705191420045292
[508] = 4.451993782501633      2.67119626950098      -0.09664689094101295
[509] = 4.454373620754012      2.672624172452407     -0.09624343228695101
[510] = 4.456743124032212      2.6740458744193276    -0.09584153332541073
[511] = 4.459102337218146      2.675461402330888     -0.09544118914840508
[512] = 4.461451304998817      2.6768707829992904    -0.09504239485292514
[513] = 4.463790071867162      2.678274043120297     -0.09464514554104861
[514] = 4.466118682122902      2.6796712092737414    -0.09424943632004602
[515] = 4.468437179873374      2.681062307924024     -0.09385526230248631
[516] = 4.470745609034369      2.682447365420621     -0.09346261860634054
[517] = 4.473044013330964      2.6838264079985783    -0.09307150035508467
[518] = 4.475332436298353      2.6851994617790114    -0.09268190267780112
[519] = 4.477610921282665      2.686566552769599     -0.09229382070927852
[520] = 4.479879511441791      2.687927706865074     -0.09190724959011079
[521] = 4.482138249746198      2.6892829498477187    -0.09152218446679455
[522] = 4.484387178979745      2.690632307387847     -0.09113862049182547
[523] = 4.486626341740493      2.691975805044296     -0.09075655282379325
[524] = 4.4888557804415115     2.693313468264907     -0.09037597662747536
[525] = 4.491075537311682      2.694645322387009     -0.08999688707392979
[526] = 4.4932856543964945     2.695971392637897     -0.08961927934058614
[527] = 4.495486173558852      2.6972917041353117    -0.08924314861133593
[528] = 4.497677136479857      2.698606281887914     -0.08886849007662141
[529] = 4.4998585846595995     2.6999151507957597    -0.08849529893352327
[530] = 4.5020305594179515     2.7012183356507706    -0.08812357038584721
[531] = 4.504193101895339      2.7025158611372033    -0.0877532996442092
[532] = 4.506346253053531      2.703807751832118     -0.08738448192611982
[533] = 4.508490053676407      2.705094032205844     -0.08701711245606705
[534] = 4.510624544370738      2.7063747266224425    -0.08665118646559833
[535] = 4.512749765566947      2.707649859340168     -0.08628669919340111
[536] = 4.514865757519881      2.7089194545119284    -0.08592364588538254
[537] = 4.516972560309571      2.7101835361857427    -0.0855620217947479
[538] = 4.519070213841991      2.711442128305195     -0.08520182218207777
[539] = 4.5211587578498165     2.71269525470989      -0.08484304231540457
[540] = 4.523238231893173      2.7139429391359036    -0.08448567747028735
[541] = 4.525308675360387      2.7151852052162324    -0.08412972292988605
[542] = 4.5273701274687355     2.716422076481241     -0.08377517398503426
[543] = 4.529422627265181      2.717653576359109     -0.08342202593431126
[544] = 4.531466213627122      2.7188797281762733    -0.08307027408411272
[545] = 4.533500925263118      2.7201005551578707    -0.0827199137487203
[546] = 4.5355268007136305     2.7213160804281786    -0.08237094025037073
[547] = 4.537543878351751      2.7225263270110505    -0.08202334891932297
[548] = 4.539552196383924      2.7237313178303544    -0.08167713509392532
[549] = 4.541551792850679      2.7249310757104075    -0.0813322941206805
[550] = 4.543542705627343      2.7261256233764053    -0.08098882135431067
[551] = 4.54552497242476       2.727314983454856     -0.08064671215782067
```

```
[552] = 4.54749863079001        2.7284991784740056      -0.08030596190256072
[553] = 4.549463718107113       2.7296782308642675      -0.07996656596828808
[554] = 4.551420271597743       2.7308521629586453      -0.07962851974322736
[555] = 4.553368328321929       2.732020996993157       -0.07929181862413048
[556] = 4.5553079251787585      2.7331847551072554      -0.07895645801633495
[557] = 4.55723909890708        2.734343459344248       -0.07862243333382192
[558] = 4.559161886086191       2.735497131651714       -0.07828973999927256
[559] = 4.561076323136536       2.7366457938819213      -0.07795837344412405
[560] = 4.562982446320398       2.737789467792239       -0.07762832910862445
[561] = 4.564880291742583       2.738928175045549       -0.07729960244188647
[562] = 4.5667698953511 2.74006193721066        -0.07697218890194064
[563] = 4.56865129293785        2.74119077576271        -0.0766460839557873
[564] = 4.5705245201392986      2.742314712083579       -0.07632128307944781
[565] = 4.57238961243715        2.74343376746229        -0.07599778175801482
[566] = 4.574246605159026       2.7445479630954153      -0.0756755754857017
[567] = 4.576095533479124       2.7456573200874743      -0.07535465976589113
[568] = 4.577936432418895       2.746761859451337       -0.07503503011118257
[569] = 4.579769336847699       2.7478616021086193      -0.07471668204343927
[570] = 4.581594281483469       2.7489565688900814      -0.07439961109383394
[571] = 4.583411300893367       2.7500467805360205      -0.0740838128028941
[572] = 4.585220429494441       2.751132257696665       -0.0737692827205461
[573] = 4.587021701554274       2.752213020932565       -0.07345601640615856
[574] = 4.588815151191635       2.753289090714981       -0.07314400942858507
[575] = 4.590600812377122       2.7543604874262733      -0.07283325736620573
[576] = 4.592378718933813       2.7554272313602874      -0.07252375580696836
[577] = 4.5941489045378985      2.7564893427227393      -0.07221550034842832
[578] = 4.595911402719324       2.7575468416315942      -0.07190848659778809
[579] = 4.597666246862422       2.7585997481174536      -0.07160271017193567
[580] = 4.5994134702065494      2.7596480821239298      -0.07129816669748236
[581] = 4.601153105846711       2.7606918635080264      -0.0709948518107999
[582] = 4.60288518673419        2.761731112040514       -0.0706927611580564
[583] = 4.6046097456771715      2.762765847406303       -0.0703918903952521
[584] = 4.6063268153413635      2.7637960892048183      -0.07009223518825375
[585] = 4.608036428250617       2.76482185695037        -0.069793379121282887
[586] = 4.60973861678754        2.7658431700725243      -0.069449655415467873
[587] = 4.611433413194112       2.766860047916467       -0.06920051970947086
[588] = 4.613120849572295       2.767872509743377       -0.06890568358287096
[589] = 4.61480095788464        2.7688805747307836      -0.06861204149057366
[590] = 4.616473769954894       2.7698842619729365      -0.06831958915833314
[591] = 4.6181393174686045      2.7708835904811626      -0.06802832232199234
[592] = 4.6197976319737135      2.7718785791842278      -0.06773823672751236
[593] = 4.621448744881163       2.772869246928698       -0.0674493281310002
[594] = 4.623092687465483       2.7738556124792897      -0.06716159229873657
[595] = 4.6247294908653895      2.7748376945192335      -0.06687502500720269
[596] = 4.626359186084369       2.775815511650621       -0.06658962204310634
[597] = 4.627981803991271       2.7767890823947625      -0.06630537920340758
[598] = 4.629597375320888       2.7777584251925327      -0.06602229229534334
[599] = 4.631205930674542       2.7787235584047254      -0.06574035713645181
```

```
[600] = 4.632807500520661      2.779684500312397      -0.06545956955459596
[601] = 4.634402115195357      2.7806412691172144     -0.06517992538798631
[602] = 4.6359898049030015     2.7815938829418005     -0.06490142048520336
[603] = 4.637570599716795      2.7825423598300767     -0.064624050705219111
[604] = 4.6391445295793385     2.7834867177476035     -0.06434781191741817
[605] = 4.640711624303204      2.7844269745819226     -0.06407270000161813
[606] = 4.642271913571493      2.785363148142896      -0.06379871084808926
[607] = 4.6438254269384025     2.7862952561630414     -0.0635258403575739
[608] = 4.6453721938297825     2.7872233162978692     -0.06325408444130487
[609] = 4.646912243543695      2.788147346126217      -0.06298343902102356
[610] = 4.648445605250972      2.7890673631505827     -0.0627139002899731
[611] = 4.64997230799576       2.7899833847974556     -0.062445463408036306
[612] = 4.6514923806960775     2.790895428417646      -0.06217812511150976
[613] = 4.65300585214436       2.7918035112866155     -0.061911881103361606
[614] = 4.654512751008005      2.7927076506048025     -0.06164672735812584
[615] = 4.6560131058299135     2.7936078634979484     -0.06138265986094073
[616] = 4.657506945029039      2.794504167017423      -0.06111967460756322
[617] = 4.658994296900911      2.7953965781405463     -0.06085776760438212
[618] = 4.660475189618186      2.7962851137709115     -0.06059693486843129
[619] = 4.66194965123117       2.7971697907387023     -0.06033717242740187
[620] = 4.663417709668359      2.798050625801015      -0.06007847631965426
[621] = 4.6648793927369585     2.798927635642175      -0.0598208425942295
[622] = 4.666334728123417      2.7998008368740503     -0.05956426731086002
[623] = 4.66778374339395       2.80067024603637       -0.059308746539980146
[624] = 4.66922646599500595    2.8015358795970355     -0.05905427636273573
[625] = 4.670662923254054      2.802397753952432      -0.05880085287099371
[626] = 4.672093142379568      2.8032558854277405     -0.05854847216735072
[627] = 4.673517150462075      2.8041102902772455     -0.058297130365141586
[628] = 4.674934974474406      2.804960984684644      -0.05804682358844724
[629] = 4.6763466412722545     2.8058079847633524     -0.05779754797210192
[630] = 4.677752177594684      2.80665130655681       -0.0575492996617003
[631] = 4.6791516100646415     2.8074909660387846     -0.05730207481360376
[632] = 4.6805449651894575     2.8083269791136747     -0.05705586959494656
[633] = 4.681932269361347      2.8091593616168087     -0.05681068018364115
[634] = 4.683313548857914      2.809988129314748      -0.056566502768383424
[635] = 4.684688829842641      2.8108132979055847     -0.056323333548657324
[636] = 4.686058138365396      2.811634883019237      -0.056081168734738916
[637] = 4.687421500362914      2.8124529002177483     -0.055840004547700314
[638] = 4.688778941659298      2.813267364995579      -0.05559983721941279
[639] = 4.690130487966503      2.8140782927799015     -0.05536066299254992
[640] = 4.691476164884822      2.814885698930893      -0.055122478120589805
[641] = 4.692815997903377      2.8156895987420265     -0.05488527886781724
[642] = 4.694150012400595      2.816490007440357      -0.05464906150932544
[643] = 4.6954782336446925     2.8172869401868152     -0.054413822331017055
[644] = 4.696800686794152      2.8180804120764913     -0.054179557629605225
[645] = 4.698117396898202      2.818870438138921      -0.05394626371261381
[646] = 4.699428388897288      2.8196570333383724     -0.0537139368983775
[647] = 4.7007336876235435     2.8204402125741264     -0.053482573516041604
```

```
[648] = 4.702033317801269        2.8212199906807616        -0.053252169905561
[649] = 4.703327304047389        2.8219963824284333        -0.05302272241769936
[650] = 4.704615670871925        2.822769402523155         -0.05279422741402735
[651] = 4.705898442678459        2.8235390656070756        -0.052566681266920996
[652] = 4.707175643764595        2.824305386258757         -0.05234008035955927
[653] = 4.708447298322418        2.8250683789934508        -0.05211442108592158
[654] = 4.7097134304389545       2.825828058263373         -0.05188969985078489
[655] = 4.710974064096629        2.8265844384579775        -0.05166591306972017
[656] = 4.712229223173715        2.8273375339042293        -0.05144305716908906
[657] = 4.713478931444789        2.8280873588668736        -0.05121128586039555
[658] = 4.714723212581184        2.82883392754871          -0.05100012376850189
[659] = 4.715962090151431        2.829577254090859         -0.05078003917518369
[660] = 4.717195587621714        2.8303173525730285        -0.05056087127556507
[661] = 4.718423728356306        2.8310542370137837        -0.05034261654989326
[662] = 4.7196465356180175       2.83178792137081          -0.05012527148917688
[663] = 4.720864032568634        2.8325184195411803        -0.04990883259518003
[664] = 4.722076242269357        2.833245745361614         -0.0496932963804159
[665] = 4.723283187681238        2.833969912608743         -0.04947865936814026
[666] = 4.724484891665618        2.8346909349993705        -0.04926491809234442
[667] = 4.725681376984554        2.8354088261907324        -0.04905206909774802
[668] = 4.726872666301255        2.8361235997807532        -0.04884010893979161
[669] = 4.728058782180513        2.836835269308308         -0.04862903418462863
[670] = 4.729239747089123        2.8375438482534734        -0.048418841409117494
[671] = 4.730415583396313        2.8382493500377883        -0.04820952720081294
[672] = 4.731586313374173        2.838951788024504         -0.048001088157957596
[673] = 4.732751959198065        2.8396511755188394        -0.04779352088947276
[674] = 4.733912542947055        2.840347525768233         -0.047586822014949265
[675] = 4.735068086604322        2.841040851962593         -0.047380988164638
[676] = 4.736218612057578        2.841731167234547         -0.04717601597943992
[677] = 4.737364141099487        2.8424184846596923        -0.046971902110896205
[678] = 4.73850469542807         2.8431028172568418        -0.04676864322117768
[679] = 4.739640296647119        2.8437841779882715        -0.04656623598307446
[680] = 4.740770966266609        2.8444625797599654        -0.04636467707998492
[681] = 4.741896725703103        2.8451380354218614        -0.04616396320590464
[682] = 4.743017596280156        2.845810557768093         -0.04596409106541512
[683] = 4.744133599228722        2.8464801595372333        -0.04576505737367206
[684] = 4.745244755687555        2.847146853412533         -0.04556685885639364
[685] = 4.746351086703609        2.8478106520221655        -0.04536949224984829
[686] = 4.747452613232436        2.848471567939462         -0.04517295430084254
[687] = 4.748549356138588        2.8491296136831523        -0.04497724176670832
[688] = 4.749641336196   2.8497848017176004        -0.044782351415290245
[689] = 4.7507285740884 2.8504371444530405        -0.04458828002493262
[690] = 4.7518110904096895       2.8510866542458135        -0.04439502438446611
[691] = 4.752888905664332        2.8517333433985996        -0.044202258129319448
[692] = 4.753962040267753        2.852377224160652         -0.04401094756088066
[693] = 4.755030514546715        2.8530183087280294        -0.043820120007733165
[694] = 4.756094348739708        2.8536566092438247        -0.04363009546439169
[695] = 4.757153562997331        2.854292137798399         -0.04344087077191302
```

16

```
[696] = 4.758208177382677        2.8549249064296065    -0.04325244278175648
[697] = 4.7592582118717095       2.8555549271230256    -0.04306480835576915
[698] = 4.760303686353639        2.856182211812184     -0.0428779643661711
[699] = 4.761344620631308        2.856806772378785     -0.042691907695540085
[700] = 4.762381034421558        2.857428620652935     -0.042506635236796486
[701] = 4.763412947355604        2.8580477684133623    -0.04232214389318762
[702] = 4.764440378979411        2.8586642273876466    -0.04213843057827215
[703] = 4.765463348754061        2.8592780092524364    -0.04195549221590427
[704] = 4.766481876056119        2.8598891256336714    -0.041773325740217596
[705] = 4.767495980178007        2.860497588106804     -0.041591928095609
[706] = 4.768505680328364        2.861103408197018     -0.041411296236722156
[707] = 4.769510995632408        2.861706597379445     -0.04123142712843107
[708] = 4.7705119451323075       2.8623071670793845    -0.04105231774582324
[709] = 4.771508547787532        2.862905128672519     -0.040873965074182804
[710] = 4.772500822475215        2.8635004934851294    -0.04069636610897349
[711] = 4.773488787990515        2.864093272794309     -0.04051951785582132
[712] = 4.7744724630469655       2.864683477828179     -0.04034341733049734
[713] = 4.775451866276833        2.8652711197661 -0.040168061558899903
[714] = 4.776427016231471        2.8658562097388827    -0.039993447577037135
[715] = 4.777397931381667        2.866438758829   -0.03981957243100896
[716] = 4.778364630117997        2.867018778070798     -0.03964643317698911
[717] = 4.77932713075117         2.8675962784507023    -0.03947402688120712
[718] = 4.78028545151238         2.868171270907428     -0.039302350619929774
[719] = 4.781239610553644        2.8687437663321864    -0.03913140147944293
[720] = 4.782189625948153        2.8693137755688913    -0.038961176556032734
[721] = 4.783135515690608        2.8698813094143647    -0.03879167295596707
[722] = 4.784077297697568        2.8704463786185404    -0.03862288779547661
[723] = 4.785014989807781        2.8710089938846686    -0.038454818200735805
[724] = 4.7859486097825314       2.8715691658695186    -0.03828746130784396
[725] = 4.786878175305966        2.8721269051835794    -0.038120814262805704
[726] = 4.787803703985437        2.8726822223912625    -0.03795487422151193
[727] = 4.788725213351834        2.8732351280111006    -0.03778963834972005
[728] = 4.789642720859914        2.873785632515948     -0.03762510382303457
[729] = 4.790556243888629        2.874333746333177     -0.03746126782688727
[730] = 4.791465799741464        2.8748794798448785    -0.03729812755651732
[731] = 4.792371405646758        2.875422843388055     -0.037135680216951475
[732] = 4.793273078758032        2.8759638472548197    -0.03697392302298383
[733] = 4.794170836154315        2.876502501692589     -0.036812853199155754
[734] = 4.795064694840465        2.877038816904279     -0.036652467979735516
[735] = 4.795954671747494        2.8775728030484964    -0.036492764608698006
[736] = 4.796840783732886        2.8781044702397316    -0.03633374033970409
[737] = 4.797723047580918        2.878633828548551     -0.03617539243608008
[738] = 4.798601480002979        2.8791608880017874    -0.0360177181707971
[739] = 4.799476097637884        2.87968565858273      -0.03586071482645014
[740] = 4.800346917052189        2.8802081502313133    -0.03570437969523729
[741] = 4.801213954740509        2.880728372844305     -0.035548710078938645
[742] = 4.8020772271258245       2.8812463362754945    -0.03539370328889532
[743] = 4.802936750559797        2.8817620503358787    -0.03523935664598822
```

17

```
[744] = 4.803792541323078      2.8822755247938474      -0.03508566748061676
[745] = 4.804644615625617      2.88278676937537        -0.034932633132677623
[746] = 4.8054929896069645     2.8832957937641783      -0.034780250951543155
[747] = 4.806337679336585      2.883802607601951       -0.034462851829604007
[748] = 4.807178700814157      2.8843072204884947      -0.03447743253442763
[749] = 4.808016069969877      2.884809641981926       -0.03432699104437618
[750] = 4.80884980266476       2.885309881598856       -0.0341771912129452
[751] = 4.809679914690943      2.885807948814566       -0.03402803043656165
[752] = 4.810506421771979      2.886303853063188       -0.033879506120997986
[753] = 4.811329339563143      2.8867976037378855      -0.03373161568135016
[754] = 4.812148683651717      2.88728921019103        -0.033584356542015685
[755] = 4.812964469557296      2.887778681734378       -0.0334377261366714
[756] = 4.813776712732079      2.8882660276392476      -0.033291721908251394
[757] = 4.814585428561157      2.8887512571366942      -0.03314634130892468
[758] = 4.815390632362809      2.8892343794176853      -0.03300158180007296
[759] = 4.816192339388791      2.8897154036332746      -0.032857440852268244
[760] = 4.816990564824626      2.8901943388947755      -0.03271391594525036
[761] = 4.817785323789889      2.890671194273933       -0.032571004567904564
[762] = 4.8185766313384955     2.891145978803097       -0.032428704218238895
[763] = 4.819364502458986      2.8916187014753914      -0.032287012403361695
[764] = 4.820148952074809      2.8920893712448854      -0.03214592663945882
[765] = 4.820929995044607      2.8925579970267643      -0.03200544445177101
[766] = 4.821707646162494      2.8930245876974965      -0.031865563374571186
[767] = 4.822481920158337      2.893489152095002       -0.03172628095114151
[768] = 4.823252831698036      2.8939516990188214      -0.03158759473375063
[769] = 4.8240203953837995     2.89441223723028        -0.031449502283630755
[770] = 4.824784625754425      2.8948707754526555      -0.031312001170954715
[771] = 4.8255455372855725     2.8953273223713434      -0.031175088974812915
[772] = 4.8263031443900335     2.8957818866340204      -0.031038763283190385
[773] = 4.827057461418015      2.8962344768508093      -0.030903021692943367
[774] = 4.8278085026574 2.89668510159444        -0.03076786180977768
[775] = 4.828556282334027      2.8971337694004164      -0.030633281248222618
[776] = 4.829300814611953      2.8975804887671717      -0.03049927763161072
[777] = 4.830042113593725      2.898025268156235       -0.030365848592053088
[778] = 4.830780193320648      2.898468115992389       -0.030232991770416367
[779] = 4.831515067773047      2.8989090406638285      -0.030100704816299503
[780] = 4.832246750870538      2.8993480505223226      -0.029968985388010443
[781] = 4.832975256472284      2.89978515388337        -0.029837831152542696
[782] = 4.833700598377264      2.900220359026358       -0.029707239785552047
[783] = 4.83442279032453       2.900653674194718       -0.02957720897133306
[784] = 4.835141845993473      2.9010851075960833      -0.029447736402795733
[785] = 4.835857779004073      2.9015146674024437      -0.029318819781441196
[786] = 4.836570602917166      2.9019423617502995      -0.02919045681734206
[787] = 4.8372803312346955     2.9023681987408176      -0.029062645229111325
[788] = 4.837986977399971      2.9027921864399824      -0.028935382743886386
[789] = 4.838690554797919      2.9032143328787514      -0.028808667097301805
[790] = 4.8393910767553425     2.9036346460532054      -0.02868249603346633
[791] = 4.840088556541166      2.9040531339246995      -0.0285568673049394
```
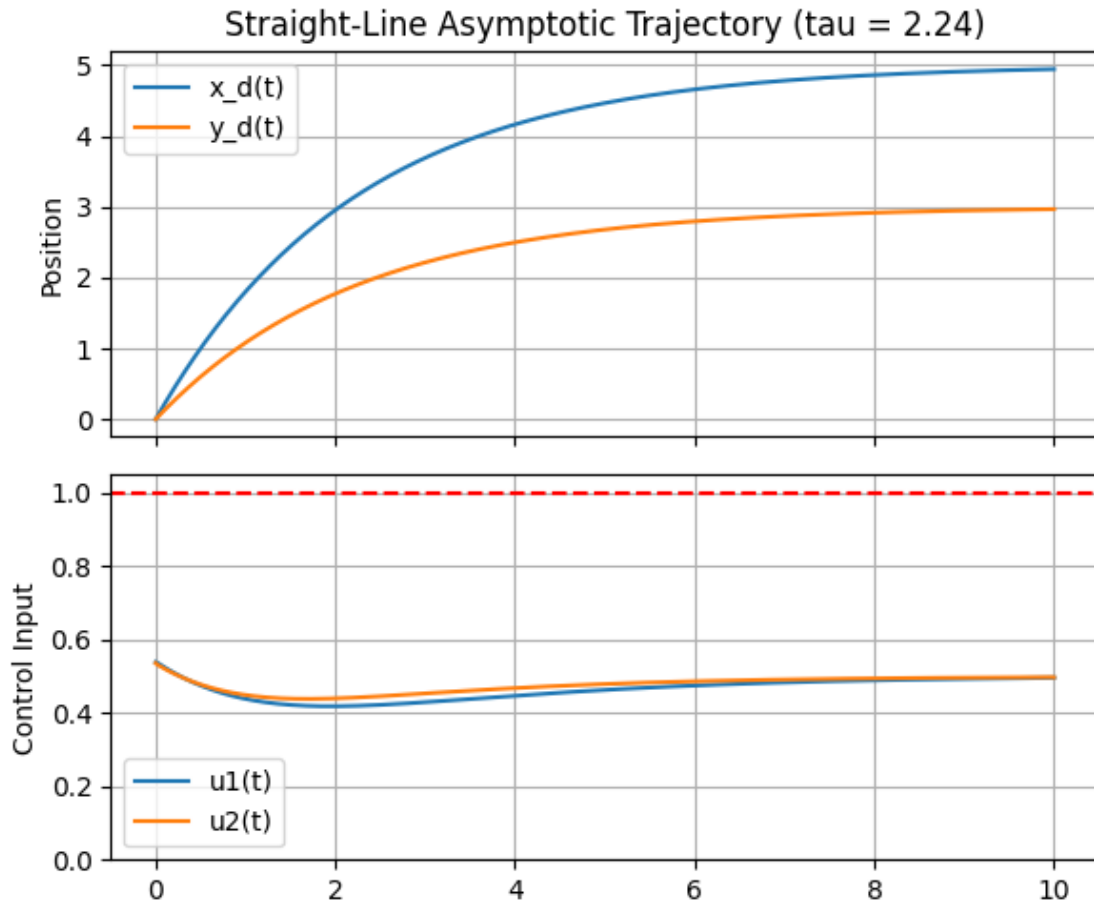
```
[792] = 4.840783007366695          2.9044698044200166      -0.028431778672707686
[793] = 4.841474442385858          2.9048846654315144      -0.028307227906161078
[794] = 4.842162874695461          2.905297724817277       -0.028183212783069466
[795] = 4.842848317335438          2.9057089904012625      -0.028059731089558806
[796] = 4.843530783289087          2.9061184699734524      -0.027936780620087618
[797] = 4.844210285483329          2.9065261712899977      -0.02781435917742321
[798] = 4.844886836788945          2.906932102073367       -0.02769246457261802
[799] = 4.8455604500208205         2.9073362700124923      -0.027571094624985956
[800] = 4.846231137938192          2.9077386827629152      -0.02745024716207868608
[801] = 4.8468989132448845         2.908139347946931       -0.027329920019661665
[802] = 4.8475637885895555         2.908538273153733       -0.027210111041691003
[803] = 4.848225776565929          2.9089354659395577      -0.027090818080289163
[804] = 4.848884889713043          2.909330933827826       -0.026972038995721467
[805] = 4.84954114051548           2.909724684309288       -0.026853771656372333
[806] = 4.850194541403603          2.9101167248421618      -0.026736013938721586
[807] = 4.850845104753797          2.910507062852278       -0.026618763727320617
[808] = 4.851492842888698          2.9108957057332185      -0.026502018914768746
[809] = 4.852137768077428          2.9112826608464566      -0.026385777401689382
[810] = 4.852779892535829          2.911667935521497       -0.026270037096706368
[811] = 4.8534192284266915         2.9120515370560147      -0.026154795916420184
[812] = 4.854055787859987          2.912433472715992       -0.026040051785384193
[813] = 4.854689582893098          2.912813749735859       -0.02592580263608102
[814] = 4.855320625531042          2.9131923753186255      -0.02581204640889865
[815] = 4.855948927726706          2.9135693566360237      -0.025698781052106878
[816] = 4.856574501381065          2.913944700828639       -0.025586004521833437
[817] = 4.857197358343416          2.9143184150060493      -0.02547371478204041
[818] = 4.857817510411591          2.914690506246955       -0.025361909804500433
[819] = 4.858434969332196          2.9150609815993174      -0.025250587568773037
[820] = 4.859049746800817          2.9154298480804903      -0.025139746062180987
[821] = 4.859661854462254          2.9157971126773523      -0.025029383279786533
[822] = 4.860271303910736          2.9161627823464413      -0.024919497224367825
[823] = 4.860878106690139          2.916526864014083       -0.02481008590639519
[824] = 4.86148227429421           2.9168893645765257      -0.024701147344400751
[825] = 4.862083818166782          2.9172502909000686      -0.024592679562988863
[826] = 4.862682749701987          2.917609649821192       -0.024484680596743365
[827] = 4.863279080244481          2.9179674481466886      -0.024377148486275438
[828] = 4.8638728210896485         2.9183236926537894      -0.024270081280016093
[829] = 4.864463983483824          2.918678390090294       -0.02416347703452765
[830] = 4.865052578624501          2.9190315471747006      -0.02405733381303008
[831] = 4.8656386176605455         2.919383170596327       -0.023951649686826167
[832] = 4.866222111692408          2.9197332670154448      -0.023846422734553795
[833] = 4.866803071772333          2.9200818430633997      -0.023741651042307257
[834] = 4.867381508904566          2.9204289053427392      -0.02363733270361382
[835] = 4.867957434045565          2.9207744604273396      -0.023533465819410192
[836] = 4.868530858104211          2.9211185148625263      -0.023430048498019156
[837] = 4.869101791942004          2.9214610751652024      -0.023327078855126093
[838] = 4.869670246373281          2.9218021478239686      -0.023224555501375557
[839] = 4.8702362321654125         2.9221417392992475      -0.02312247510424804
```
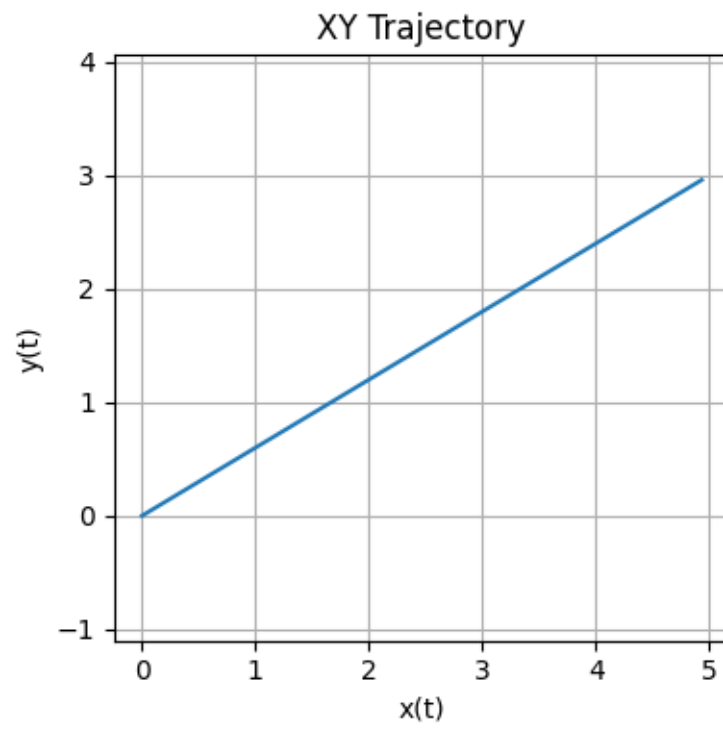
19

```
[840] = 4.870799760039011      2.922479856023407      -0.0230208372642364
[841] = 4.871360840668132      2.922816504400879      -0.0229196396386227
[842] = 4.871919484680474      2.923151690808284      -0.022818880379554825
[843] = 4.872475702657585      2.923485421594551      -0.022718557646403237
[844] = 4.8730295051350625     2.9238177030810375     -0.022618669605737655
[845] = 4.873580902602745      2.924148541561647      -0.02251921443130387
[846] = 4.874129905504922      2.9244779433029526     -0.022420190304000574
[847] = 4.874676524240521      2.924805914544313      -0.02232159541185607
[848] = 4.875220769163317      2.9251324614979897     -0.02222342795000522
[849] = 4.8757626505821134     2.925457590349268      -0.022125686120666274
[850] = 4.876302178760951      2.9257813072565706     -0.022028368133117798
[851] = 4.876839363919296      2.9261036183515774     -0.0219314722036758
[852] = 4.877374216232232      2.926424529739339      -0.021834996555669593
[853] = 4.877906745830655      2.9267440474983935     -0.02173893941942104
[854] = 4.87843696280147       2.9270621776808823     -0.02164329903221929
[855] = 4.878964877187773      2.9273789263126635     -0.021548073638299012
[856] = 4.879490498989045      2.927694299393427      -0.021453261488817193
[857] = 4.880013838161345      2.928008302896807      -0.021358860841830335
[858] = 4.880534904617495      2.9283209427704966     -0.02126486996227151
[859] = 4.881053708227267      2.9286322249363597     -0.021171287121927593
[860] = 4.881570258817571      2.9289421552905424     -0.0210781105994165
[861] = 4.882084566172644      2.9292507397035865     -0.020985338680164375
[862] = 4.882596640034231      2.929557984020539      -0.020892969656382942
[863] = 4.883106490101772      2.9298638940610635     -0.02080100182704675
[864] = 4.883614126032584      2.9301684756195505     -0.02070943349787058
[865] = 4.884119557442046      2.930471734465228      -0.02061826298128682
[866] = 4.88462279390378       2.930773676342268      -0.020527488596422856
[867] = 4.885123844949832      2.931074306969899      -0.02043710866907859
[868] = 4.885622720070852      2.9313736320425114     -0.020347121531703875
[869] = 4.8861194287162775     2.9316716572297667     -0.020257525523376098
[870] = 4.886613980294508      2.9319683881767054     -0.020168318989777723
[871] = 4.887106384173085      2.9322638305038504     -0.0200795002831739
[872] = 4.887596649678868      2.9325579898073206     -0.019991067762390114
[873] = 4.888084786098215      2.932850871658929      -0.019903019792789883
[874] = 4.8885708026771555     2.9331424816062937     -0.019815354746252456
[875] = 4.889054708621565      2.933432825172939      -0.019728071001150597
[876] = 4.889536513097341      2.9337219078584047     -0.019641166942328384
[877] = 4.890016225230576      2.9340097351383454     -0.01955464096107902
[878] = 4.8904938541077305     2.934296312464638      -0.019468491455122 79
[879] = 4.890969408775804      2.9345816452654825     -0.019382716828584 89
[880] = 4.89144289824251       2.934865738945506      -0.019297315491973433
[881] = 4.891914331476442      2.935148598885865      -0.0192122858621575
[882] = 4.892383717407245      2.935430230444347      -0.019127626362345086
[883] = 4.892851064925786      2.935710638955472      -0.019043335422061283
[884] = 4.893316382884322      2.935989829730593      -0.01895941147712634
[885] = 4.8937796800966655     2.936267808057999      -0.018875852969633896
[886] = 4.894240965338355      2.9365445792030127     -0.018792658347929123
[887] = 4.894700247346817      2.9368201484080902     -0.018709826066587044
```

20

```
[888] = 4.895157534821536        2.937094520892922        -0.01862735458639082
[889] = 4.895612836424216        2.9373677018545292       -0.018545242374310062
[890] = 4.896066160778945        2.937639696467367        -0.01846348790347927
[891] = 4.896517516472359        2.937910509883416        -0.018382089653176212
[892] = 4.896966912053808        2.938180147232285        -0.018301046108800453
[893] = 4.897414356035511        2.938448613621307        -0.018220355761851822
[894] = 4.89785985689272         2.9387159141356323       -0.018140017109909014
[895] = 4.898303423063885        2.938982053838331        -0.018060028656608204
[896] = 4.898745062950807        2.939247037770484        -0.01798038891162166
[897] = 4.899184784918802        2.939510870951281        -0.017901096390636487
[898] = 4.899622597296857        2.939773558378114        -0.017822149615333387
[899] = 4.90005850837779         2.940035105026674        -0.01774354711336537
[900] = 4.900492526418402        2.9402955158510413       -0.017665287418336686
[901] = 4.900924659639642        2.940554795783785        -0.017587369069781655
[902] = 4.9013549162267545       2.9408129497360527       -0.01750979061314359
[903] = 4.901783304329438        2.9410699825976625       -0.01743255059975387
[904] = 4.902209832061999        2.9413258992371993       -0.017355647586810834
[905] = 4.902634507503507        2.9415807045021043       -0.01727908013735892
[906] = 4.903057338697947        2.9418344032187678       -0.017202846820267802
[907] = 4.903478333654367        2.94208700019262         -0.017126946210211498
[908] = 4.903897500347039        2.9423385002082236       -0.01705137688764768
[909] = 4.904314846715604        2.942588908029362        -0.01697613743879683
[910] = 4.904730380665219        2.9428382283991312       -0.01690122645562161
[911] = 4.905144110066716        2.9430864660400298       -0.01682664253580621
[912] = 4.9055560427567455       2.943333625654047        -0.01675238428273578
[913] = 4.905966186537922        2.9435797119227534       -0.016678450305475837
[914] = 4.906374549178981        2.943824729507389        -0.016604839218751805
[915] = 4.906781138414916        2.9440686830489495       -0.016531549642928554
[916] = 4.90718596194713         2.9443115771682784       -0.016458580203990002
[917] = 4.907589027443585        2.944553416466151        -0.016385929533518827
[918] = 4.9079903425389375       2.9447942055233627       -0.01631359626867605
[919] = 4.908389914834693        2.945033948900816        -0.016241579052180887
[920] = 4.908787751899344        2.9452726511396063       -0.016169876532290503
[921] = 4.909183861268516        2.9455103167611094       -0.016098487362779874
[922] = 4.909578250445108        2.945746950267065        -0.016027410202921706
[923] = 4.909970926899438        2.945982556139662        -0.015956643717466346
[924] = 4.91036189806938         2.946217138841628        -0.015886186576621823
[925] = 4.910751171360509        2.946450702816305        -0.015816037456033834
[926] = 4.911138754146241        2.9466832524877447       -0.015746195036765963
[927] = 4.911524653767968        2.946914792260781        -0.01567665800527971
[928] = 4.911908877535203        2.947145326521122        -0.015607425053414748
[929] = 4.912291432725715        2.947374859635429        -0.015538494878369176
[930] = 4.912672326585667        2.9476033959514 -0.015469866182679815
[931] = 4.913051566329755        2.9478309397978526       -0.015401537674202583
[932] = 4.913429159141343        2.9480574954848056       -0.015333508066092863
[933] = 4.913805112172599        2.9482830673035596       -0.015265776076785982
[934] = 4.914179432544634        2.94850765952678         -0.015198340429977714
[935] = 4.91455212734763         2.9487312764085782       -0.015131199854604838
```

```
[936]  = 4.9149232036409805        2.9489539221845886        -0.015064353084825781
[937]  = 4.915292668453422         2.949175601072054         -0.01499779886000121
[938]  = 4.915660528783167         2.9493963172699007        -0.014931535924674813
[939]  = 4.916026791598038         2.949616074958823         -0.014865563028554
[940]  = 4.916391463835595         2.9498348783013566        -0.014799878926490812
[941]  = 4.916754552403272         2.950052731441963         -0.014734482378462688
[942]  = 4.917116064178505         2.9502696385071028        -0.014669372149553436
[943]  = 4.917476006008866         2.95048560360532          -0.01460454700993421
[944]  = 4.917834384712188         2.950700630827313         -0.014540005734844501
[945]  = 4.918191207076695         2.950914724246017         -0.014475747104573269
[946]  = 4.918546479861132         2.9511278879166793        -0.014411769904440009
[947]  = 4.918900209794895         2.9513401258769374        -0.014348072924775954
[948]  = 4.919252403578154         2.9515514421468927        -0.01428465496090532
[949]  = 4.919603067881982         2.9517618407291892        -0.014221514813126557
[950]  = 4.919952209348482         2.951971325609089         -0.014158651286693759
[951]  = 4.920299834590912         2.952179900754547         -0.014096063191797946
[952]  = 4.92064595019381          2.952387570116286         -0.01403374934354858
[953]  = 4.92099056271312          2.952594337627872         -0.013971708561955025
[954]  = 4.921333678676316         2.9528002072057897        -0.013909939671908143
[955]  = 4.921675304582523         2.9530051827495143        -0.013848441503161809
[956]  = 4.922015446902644         2.9532092681415865        -0.013787212890314617
[957]  = 4.9223541120794785        2.9534124672476874        -0.013726252672791575
[958]  = 4.92269130652785          2.95361478391671          -0.013665559694825847
[959]  = 4.92302703663472          2.9538162219808326        -0.013605132805440586
[960]  = 4.9233613087593175        2.9540167852555905        -0.013544970858430755
[961]  = 4.923694129233252         2.9542164775399513        -0.013485072712345069
[962]  = 4.924025504360638         2.9544153026163826        -0.01342543723046795
[963]  = 4.924355440418212         2.954613264250927         -0.013366063280801 53
[964]  = 4.924683943655454         2.9548103661932728        -0.013306949736047782
[965]  = 4.925011020294704         2.955006612176822         -0.013248095473590545
[966]  = 4.925336676531278         2.9552020059187667        -0.013189499375477774
[967]  = 4.9256609185335885        2.9553965511201534        -0.013131160328403734
[968]  = 4.925983752443263         2.9555902514659573        -0.013073077223691313
[969]  = 4.926305184375252         2.9557831106251515        -0.013015248957274309
[970]  = 4.926625220417957         2.9559751322507744        -0.012957674429679841
[971]  = 4.9269438666333345        2.956166319980001         -0.012900352546010792
[972]  = 4.927261129057018         2.9563566774342105        -0.01284328221592827
[973]  = 4.927577013698428         2.9565462082190566        -0.012786462353634214
[974]  = 4.92789152654089          2.9567349159245335        -0.012729891877853913
[975]  = 4.928204673541742         2.9569228041250457        -0.012673569711818686
[976]  = 4.928516460632458         2.9571098763794748        -0.012617494783248607
[977]  = 4.928826893718744         2.957296136231246         -0.012561666024335203
[978]  = 4.929135978680667         2.9574815872083997        -0.012506082371724342
[979]  = 4.9294437213727536        2.957666232823652         -0.012450742766499
[980]  = 4.929750127624108         2.9578500765744646        -0.012395646154162216
[981]  = 4.93005520323852          2.958033121943112         -0.012340791484620 05
[982]  = 4.930358953994574         2.9582153723967446        -0.012286177712164626
[983]  = 4.930661385645763         2.9583968313874576        -0.012231803795457142
```

22

```
[984]  = 4.930962503920589        2.9585775023523535       -0.012177668697511024
[985]  = 4.931262314522681        2.9587573887136083       -0.012123771385675105
[986]  = 4.931560823130896        2.9589364938785376       -0.012070110831616814
[987]  = 4.931858035399432        2.959114821239659        -0.012016686011305516
[988]  = 4.932153956957929        2.959292374174758        -0.011963495904995767
[989]  = 4.932448593411584        2.95946915604695         -0.011910539497210732
[990]  = 4.932741950341246        2.9596451702047477       -0.011857815776725634
[991]  = 4.9330340333035325       2.9598204199821194       -0.011805323736551188
[992]  = 4.933324847830928        2.959994908698557        -0.011753062373917206
[993]  = 4.933614399431892        2.960168639659136        -0.011701030690256131
[994]  = 4.933902693590964        2.960341616154578        -0.011649227691186691
[995]  = 4.93418973576886         2.960513841461316        -0.011597652386497593
[996]  = 4.934475531402587        2.960685318841552        -0.011546303790131308
[997]  = 4.934760085905539        2.9608560515433235       -0.0114951809201678
[998]  = 4.935043404667601        2.961026042800561        -0.011444282798808407
[999]  = 4.935325493055251        2.9611952958331504       -0.011393608452359748
```


Straight-Line Asymptotic Trajectory (tau = 2.24)

XY Trajectory

[ ]: