*With inertia*

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| import pygal | # import the correct module to allow us to draw a graph |
| from random import randint | # import the correct function from a module to allow us to pick random numbers |
| xy\_chart = pygal.XY() | # create a chart |
| xy\_chart.title = 'Density of earth' | # set the chart title to ‘Density of the earth’ |
| D=5.513 | # create a variable D and set it equal to 5.513 |
| I=7.66 | # create a variable I and set it equal to 7.76 |
| for p in range (1,100001): | # start a for loop for a variable p to run from 1 to 100001 |
| rho1=randint(5513,15000)/1000 | # set a variable rho1 to be a random number between 5.513 and 15.00 |
| rho2=randint(2800,5513)/1000 | # set a variable rho2 to be a random number between 2.800 and 5.513 |
| z=randint(0,100)/100 | # set a variable z to be a random number between 0 .00 and 1.00 |
| density=rho1\*z\*\*3+rho2\*(1-z\*\*3) | # calculate the density using rho1, rho2 and z |
| percent1=abs(D-density)\*100/D | # calculate the percentage difference of the current density compared to D |
| mi=(8\*3.14159265/15)\*((rho1-rho2)\*z\*\*5+rho2) | # calculate the intertia |
| percent2=abs(mi-I)\*100/I | # calculate the percentage difference of the current inertia compared to I |
| if percent1<0.5 and percent2<0.5: | # test if percent1 and percent2 are under 0.5 |
| print(rho1,rho2,z) | # print the values of rho1,rho2 and z |
| xy\_chart.add('a',[(0,rho1), (z, rho1)]) | # add a line segment from (0,rho1) to (z,rho1), calling it a |
| xy\_chart.add('b',[(z, rho1), (z, rho2)]) | # add a line segment from (z,rho1) to (z,rho2), calling it b |
| xy\_chart.add('c',[(z,rho2), (1, rho2)]) | # add a line segment from (z,rho2) to (1,rho2), calling it c |
| xy\_chart.render() | # draw the graph |

Without inertia

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