```
 1: from numpy import arange
 2: from pylab import *
 3:
 4:
 5: def trapazoidal(f, ax, bx, ay, by, h=0.001):
 6:     h2 = h**2
 7:     Nx = int(abs(bx - ax) / h)
 8:     Ny = int(abs(by - ay) / h)
 9:     corner = 0.25 * (f(ax, ay) + f(ax, by) + f(bx, ay) + f(bx, by))
10:     edge = 0.5 * (sum([f(ax, ay + i * h) for i in range(1, Ny)]) + sum([
11:         f(bx, ay + i * h) for i in range(1, Ny)
12:     ]) + sum([f(ax + i * h, ay) for i in range(1, Nx)]) + sum(
13:         [f(ax + i * h, by) for i in range(1, Nx)]))
14:     inner = sum([
15:         sum([f(ax + i * h, ay + k * h)
16:              for k in range(1, Ny)])
17:         for i in range(1, Nx)
18:     ])
19:     return (h**2) * (corner + edge + inner)
20:
21:
22: def p1():
23:
24:     def force(z):
25:         return lambda x, y: 0 if x == y == z == 0 else pow(x**2+ y**2+z**2,-3/2)
26:
27:     def b():
28:         G = 6.674e-11
29:         sigma = 100
30:         fz = [
31:             G * sigma * z * trapazoidal(force(z), -5, 5, -5, 5, 0.1)
32:             for z in arange(0, 10, 0.1)
33:         ]
34:         plot(arange(0, 10, 0.1), fz)
35:         show()
36:
37:     b()
38:
39: if __name__ == "__main__":
40:     p1()
```