```
G = 6.67408e-11; % m^3/(kg*s^2)
G = G / 1000^3;

% Pluto - 1
% Charon - 2
% P5 - 3

% Gravitational Parameters of each Body, km^3/s^2
mu1 = 981.600887707
```

```
mu1 = 981.6009
```

```
mu2 = 102.30
```

```
mu2 = 102.3000
```

```
mu3 = 10
```

```
mu3 = 10
```

```
% Masses of each body, kg
m1 = mu1/G
```

```
m1 = 1.4708e+22
```

```
m2 = mu2/G
```

```
m2 = 1.5328e+21
```

```
m3 = mu3/G
```

```
m3 = 1.4983e+20
```

Distances and Vectors between bodies, km

```
r13_mag = 20000
```

```
r13_mag = 20000
```

```
r12_mag = 17536
```

```
r12_mag = 17536
```

```
r13 = r13_mag*[cosd(45), sind(45)]
```

```
r13 = 1×2
10^4 ×
    1.4142    1.4142
```

```
r12 = [r12_mag, 0]
```

```
r12 = 1×2
       17536           0
```

```
r32 = r12-r13
```

```
r32 = 1×2
```

```
10^4 ×
    0.3394   -1.4142
```

Accelerations and terms, km/s^2

```
dom_accel = -G / r13_mag^3 * (m1+m3) * r13
```

```
dom_accel = 1×2
10^-5 ×
   -0.1753   -0.1753
```

```
dir_pert_accel = G*m2*(r32/norm(r32)^3)
```

```
dir_pert_accel = 1×2
10^-6 ×
    0.1129   -0.4703
```

```
ind_pert_accel = -G*m2*(r12/norm(r32)^3)
```

```
ind_pert_accel = 1×2
10^-6 ×
   -0.5832         0
```

```
net_pert_accel = dir_pert_accel + ind_pert_accel
```

```
net_pert_accel = 1×2
10^-6 ×
   -0.4703   -0.4703
```

```
dom_accel_mag = norm(dom_accel)
```

```
dom_accel_mag = 2.4790e-06
```

```
net_pert_accel_mag = norm(net_pert_accel)
```

```
net_pert_accel_mag = 6.6509e-07
```

```
accel_ratio = dom_accel_mag / net_pert_accel_mag
```

```
accel_ratio = 3.7273
```