

```
19 while t < tf:
20
21     r = craft.pos - Earth.pos
22     rhat = r / mag(r)
23     Fgrav = -G * mEarth * mcraft / mag(r)**2 * rhat
24
25     pcraft = pcraft + Fgrav * dt
26     craft.pos = craft.pos + pcraft / mcraft * dt
27
28     trail.append(pos = craft.pos)
29     t = t + dt
30
31 print 'Craft final position: ', craft.pos, 'meters.'
```

Force calculation

Newton's second law

Position update