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> h:=(r,theta)->if abs(theta)<evalf(arcsin((6376*10^3)/r)) then 0
else 1 end if;
> Abis:=(u,s,r,theta)->s^2/r-(6.67*10^(-11)*5.98*10^24)
/r^2+0.00981*h(r,theta)/2*(cos(theta)+u/sqrt(u**2+s**2));
> Bbis:=(u,s,r,theta)->-(u*s)/r+0.00981*h(r,theta)/2*(-sin(theta)+
s/sqrt(u**2+s**2));
> fbis:=m->[Abis(op(m)),Bbis(op(m)),m[1],m[2]/m[3]];
> pt:=m->[m[3]*cos(m[4]),m[3]*sin(m[4])];
> m0:=[0,3072.5,42250*10^3,evalf(3/2*Pi)];
> voileter:=proc(m0,n,dt)
local j,k,m,image;
m:=m0;
image := pt(m0);
for k from 1 to n do
for j from 1 to 300 do
m:=evalf(m+fbis(m)*dt)
end do;
image:=image, pt(m)
end do;
return (plot([image]));
end;

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$$h := (r, \theta) \rightarrow \text{if } |\theta| < \text{evalf}\left(\arcsin\left(\frac{6376000}{r}\right)\right) \text{ then } 0 \text{ else } 1 \text{ end if} \quad (1)$$

$$Abis := (u, s, r, \theta) \rightarrow \frac{s^2}{r} - \frac{6.67 \frac{1}{1000000000000} \cdot 5.98 \cdot 10^{24}}{r^2}$$

$$+ \frac{0.00981 h(r, \theta) \left( \cos(\theta) + \frac{u}{\sqrt{u^2 + s^2}} \right)}{2}$$

$$Bbis := (u, s, r, \theta) \rightarrow -\frac{us}{r} + \frac{0.00981 h(r, \theta) \left( -\sin(\theta) + \frac{s}{\sqrt{u^2 + s^2}} \right)}{2}$$

$$fbis := m \rightarrow \left[ Abis(op(m)), Bbis(op(m)), m_1, \frac{m_2}{m_3} \right]$$

$$pt := m \rightarrow [m_3 \cos(m_4), m_3 \sin(m_4)]$$

$$m0 := [0, 3072.5, 42250000, 4.712388981]$$

voileter := **proc**(m0, n, dt)

**local** j, k, m, image;

m := m0;

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image := pt(m0);
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for k to n do
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    for j to 300 do m := evalf(m + fbis(m) * dt) end do; image := image, pt(m)
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end do;
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return plot( [image])
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end proc
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> voileter(m0,1700,1);
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