```
// ---------------------------------------------------------------------
funcprot(0);
// ---------------------------------------------------------------------

// 1*G*M/c^2 in m; Sun
GM=1.48E03;
// 2*G*M/c^2 in m; Sun
GM2=2*GM;
// 4*G*M/c^2 in m; Sun
GM4=4*GM;

cs2=1/GM2;
cs4=1/GM4;

//---------------------------------------------------------------------

function rdef=frdef(r, T, R)
    rdef=(1-cs2*r)*exp(cs2*r)-T^2+R^2;
endfunction

function rDdef=frDdef(r, T, R)
    rDdef=-(cs2^2*r)*exp(cs2*r);
endfunction

//---------------------------------------------------------------------

function [r0v]=fTR2r(ri, T, Rv)
     Nb=size(Rv,"r");

     for Ix=1:Nb
         [r0v(Ix)]=fsolve(ri,list(frdef,T,Rv(Ix)),frDdef);
     end
endfunction

// ---------------------------------------------------------------------

function [PHIv]=fPHI(rv)
    Nb=size(rv,"r");
    PHIv=zeros(rv);

    for Ix=1:Nb
        PHIv(Ix)=-GM/rv(Ix);
    end
endfunction

function [signv]=fsign(rv)
    signv=ones(rv);

    Ixe=find((1+2*fPHI(rv)) < 0);
    signv(Ixe)=-1;
endfunction

function [TR2tv]=fTR2t(rv, Tv, Rv)
    TR2tv=zeros(Tv);
    TR2tv=(Rv-Tv) ./ (Rv+Tv);
```

```
    TR2tv=TR2tv .* fsign(rv);
    TR2tv=abs(TR2tv);
    TR2tv=-GM2*log(TR2tv);
endfunction

// ---------------------------------------------------------------------

Nb=600;
T=0.001;
Rv=linspace(-3.0,3.0,Nb)';
ri=0.1;

[r0v]=fTR2r(ri,T,Rv);

disp(find((T^2<(Rv .* Rv)+1)==%F));;

Nv2=Rv .* Rv-T^2;

Tv=ones(Rv);
Tv=T*Tv

[TR2tv]=fTR2t(r0v,Tv,Rv)

// ---------------------------------------------------------------------

strT = sprintf("%8.3f", T);

f=scf(1);
clf(f,"reset");

f.visible="off";
f.immediate_drawing="off";

a=gca();
a.labels_font_size=3;
a.x_label.font_size = 4;
a.y_label.font_size = 4;
a.title.font_size = 4;

a.x_label.text = "R";
a.y_label.text = "T^2-R^2";
a.title.text = " Wurmloch | T^2-R^2 gegen R | T="+strT;
plot(Rv,Nv2);

//a.x_label.text = "R";
//a.y_label.text = "r";
//a.title.text = " Wurmloch | Radius r gegen R | T="+strT;
//plot(Rv,r0v);

//a.x_label.text = "R";
//a.y_label.text = "t";
//a.title.text = " Wurmloch | Zeit t gegen R | T="+strT;
//plot(Rv,TR2tv);

f.immediate_drawing="on";
```

```
f.visible="on";
```