

Extrasolar Planets.nb

■ Brian Woodahl, October 24, 2007

Inputs

```
numb1 = {VstarMax -> 57, Mstar -> 2.12 10^(30),  
         T -> 3.65 10^5, G -> 6.67 10^(-11)}  
  
numb2 = {rstar -> VstarMax T / (2 Pi) /. numb1}
```

■ Equation

```
resul =  
Solve[  
  {T^2 == 4 Pi^2 (rstar + rplanet)^3 / (G (Mstar + Mplanet)) /.  
    numb1 /. numb2, Mstar rstar == Mplanet rplanet /. numb1 /.  
    numb2}, {Mplanet, rplanet}]  
  
{{Mplanet -> -2.12 1030, rplanet -> -3.31122 106},  
  
  {Mplanet -> -4.49283 1026 - 7.77742 1026 I,  
  
   rplanet -> -3.90941 109 + 6.76747 109 I},  
  
  {Mplanet -> -4.49283 1026 + 7.77742 1026 I,  
  
   rplanet -> -3.90941 109 - 6.76747 109 I},  
  
  {Mplanet -> 8.98567 1026, rplanet -> 7.8122 109}}
```

■ Take Only Real Result

```
resul[[4]]  
  
{Mplanet -> 8.98567 1026, rplanet -> 7.8122 109}
```