

```
01 void starpu(float dl, float ul, float pl, float cl,  
02             float dr, float ur, float pr, float cr,  
03             float &p, float &u)  
04 {  
05     const int nriter = 20;  
06     const float tolpre = 1.0e-6;  
07     float change, fl, fld, fr, frd, pold, pstart, udiff;  
08  
09     guessp(dl, ul, pl, cl, dr, ur, pr, cr, pstart);  
10     pold = pstart;  
11     udiff = ur - ul;  
12  
13     int i = 1;  
14  
15     for ( ; i <= nriter; i++)  
16     {  
17         prefun(fl, fld, pold, dl, pl, cl);  
18         prefun(fr, frd, pold, dr, pr, cr);  
19         p = pold - (fl + fr + udiff) / (fld + frd);  
20         change = 2.0 * abs((p - pold) / (p + pold));  
21  
22         if (change <= tolpre)  
23         {  
24             break;  
25         }  
26  
27         if (p < 0.0)  
28         {  
29             p = tolpre;  
30         }  
31  
32         pold = p;  
33     }  
34  
35     if (i > nriter)  
36     {  
37         cout << "divergence in Newton-Raphson iteration" << endl;  
38         exit(1);  
39     }  
40  
41     u = 0.5 * (ul + ur + fr - fl);  
42 }
```