

: مرزي شرايط با ديفرانسييل معادلات

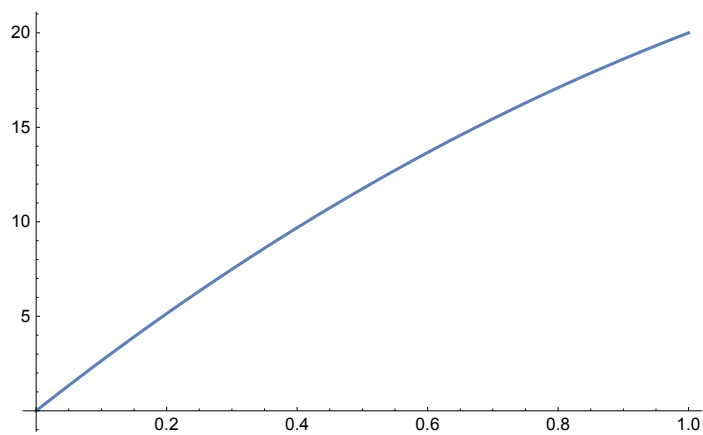
کند برآورده را مرزي شرط که ميگردد اي اوليه شرايط دنبال به Shooting روش

```
m = 1; g = 10; b = 0.2; z0 = 0; z1 = 20; t0 = 0; t1 = 1;
Table[sol = NDSolve[{m z''[t] == - m g - b z'[t], z[t0] == z0, z'[t0] == vz0}, z, {t, t0, t1}];
{vz0, z[t1] /. sol}, {vz0, 27.23, 27.24, 0.001}]
{{27.23, {19.9971}}, {27.231, {19.998}}, {27.232, {19.9989}},
{27.233, {19.9998}}, {27.234, {20.0007}}, {27.235, {20.0017}}, {27.236, {20.0026}},
{27.237, {20.0035}}, {27.238, {20.0044}}, {27.239, {20.0053}}, {27.24, {20.0062}}}
```

```
m = 1; g = 10; b = 0.2; z0 = 0; z1 = 20; t0 = 0; t1 = 1;
sol = NDSolve[{m z''[t] == - m g - b z'[t], z[t0] == z0, z'[t0] == 27.233}, z, {t, t0, t1}]
z[t1] /. sol[[1]]
Plot[z[t] /. sol, {t, t0, t1}]
z[.35] /. sol[[1]]
```

{ {z → InterpolatingFunction[ Domain: {{0., 1.}} Output: scalar ] ] }

19.9998



8.60714

مرتعش تار و شرودینگر : بعدی یک موج زمان از مستقل معادلات حل

`psisol =`

`NDSolve[{psi''[x] == (x^2 - 3) psi[x], psi[-3] == 0, psi'[-3] == 0.001}, psi, {x, -3, 3}]`

`Plot[psi[x] /. psisol, {x, -3, 3}, PlotRange -> All]`

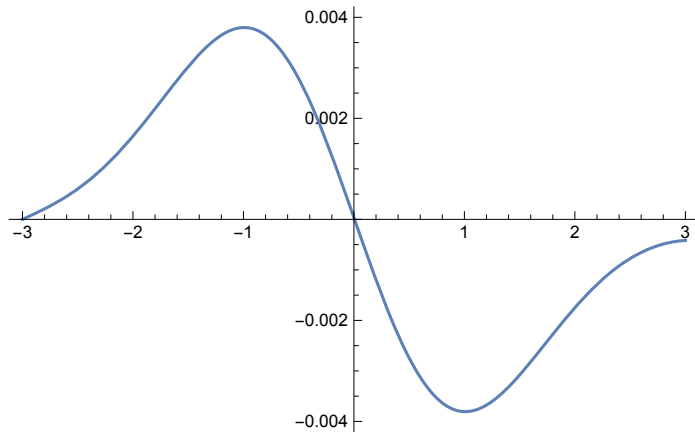
`{{psi -> InterpolatingFunction[`



Domain: {{-3, 3}}

Output: scalar

]]}



Table[psisol =

NDSolve[{psi''[x] == (x^2 - en) psi[x], psi[-3] == 0, psi'[-3] == 0.000001}, psi, {x, -3, 3}];

Plot[psi[x] /. psisol, {x, -3, 3}, PlotLabel -> "= E" en], {en, 2.95, 3.05, 0.01}]

