

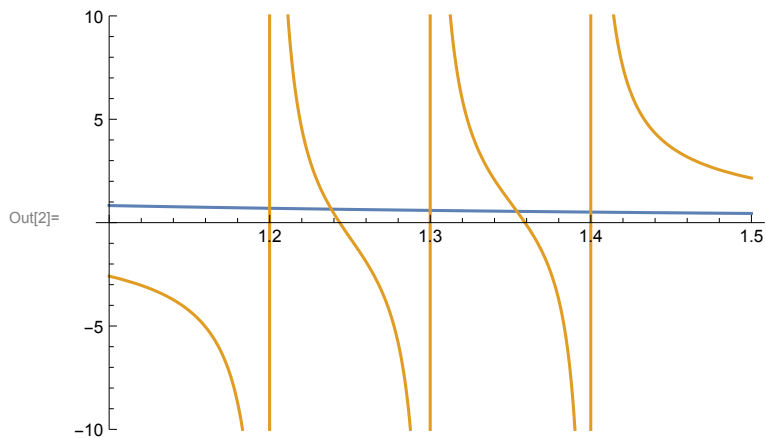
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In[1]:= (* Example 1-- nx=1.2, ny = 1.3, nz = 1.4,
what is n in the (1,1,1) direction? *)
Solve[
  1/n^2 == (1/3)/(n^2-1.2^2) + (1/3)/(n^2-1.3^2) + (1/3)/(n^2-1.4^2), n]
```

Solve::ratnz : Solve was unable to solve the system with inexact coefficients.

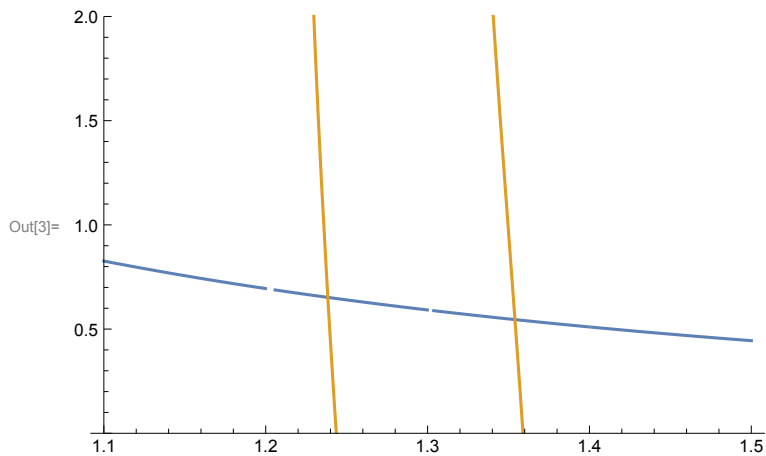
The answer was obtained by solving a corresponding exact system and numericizing the result. >>

```
Out[1]:= {{n -> -1.35397}, {n -> -1.23836}, {n -> 1.23836}, {n -> 1.35397}}
```

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In[2]:= Plot[{1/n^2, (1/3)/(n^2-1.2^2) + (1/3)/(n^2-1.3^2) + (1/3)/(n^2-1.4^2)},
  {n, 1.1, 1.5}, PlotRange -> {-10, 10}]
```



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In[3]:= Plot[{1/n^2, (1/3)/(n^2-1.2^2) + (1/3)/(n^2-1.3^2) + (1/3)/(n^2-1.4^2)},
  {n, 1.1, 1.5}, PlotRange -> {0, 2}, Exclusions -> {n == 1.2, n == 1.3, n == 1.4}]
```



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In[4]:= FindRoot[1/n^2 ==
  (1/3)/(n^2-1.2^2) + (1/3)/(n^2-1.3^2) + (1/3)/(n^2-1.4^2), {n, 1.24}]
FindRoot[1/n^2 == (1/3)/(n^2-1.2^2) +
  (1/3)/(n^2-1.3^2) + (1/3)/(n^2-1.4^2), {n, 1.35}]
```

```
Out[4]= {n -> 1.23836}
```

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Out[5]= {n -> 1.35397}
```