

In[1]:= **c1 = 0.385386386**

**c2 = 0.026**

**c3 = 0.948394678**

**Vf = -1**

**Vtb1 = 0.323705358**

Out[1]= 0.385386

Out[2]= 0.026

Out[3]= 0.948395

Out[4]= -1

Out[5]= 0.323705

```
In[41]:= FF[x_] := y /. FindRoot[Vf + y + c1 Sqrt[y + c2 Exp[(y - c3) / c2]] == x, {y, 1.5}]  
Psiwi[x_] := (-c1 / 2 + Sqrt[x - Vf + c1^2 / 4])^2  
Psisi[x_] := c3 + c2 * Log[1 / c2 * ((x - Vf - c3) / c1)^2 - c3 + c2]  
For[i = 0, i ≤ 20, i++,  
  ff[i_] := y /. FindRoot[FF[i * Vtb1 / 20] - y - c2 * Log[(i * Vtb1 / 20 - Vf - y -  
    (Psiwi[i * Vtb1 / 20] - y) / Sqrt[1 + ((Psiwi[i * Vtb1 / 20] - y) / (4 * c2))^2]  
    2])^2 / (c1^2 * c2) - y / c2 + 1] == 0, {y, 0}];  
  Eps[i_] := 0.5 Sqrt[(2 ff[i] - c3 - Psiwi[i * Vtb1 / 20])^2 -  
    (Psiwi[i * Vtb1 / 20] - c3)^2];  
  Print[{i * Vtb1 / 20, ff[i], Eps[i]}]
```

```

{0., 0.68169, 0.00503536}
{0.0161853, 0.694798, 0.00556161}
{0.0323705, 0.707921, 0.00613645}
{0.0485558, 0.721058, 0.0067627}
{0.0647411, 0.734203, 0.00744292}
{0.0809263, 0.747354, 0.00817916}
{0.0971116, 0.760505, 0.00897278}
{0.113297, 0.773648, 0.00982412}
{0.129482, 0.786776, 0.0107321}
{0.145667, 0.799875, 0.0116936}
{0.161853, 0.812932, 0.0127028}
{0.178038, 0.825926, 0.0137503}
{0.194223, 0.83883, 0.0148217}
{0.210408, 0.851609, 0.0158954}
{0.226594, 0.864212, 0.0169406}
{0.242779, 0.876573, 0.0179131}
{0.258964, 0.888598, 0.0187506}
{0.27515, 0.900157, 0.019366}
{0.291335, 0.911068, 0.0196408}
{0.30752, 0.92108, 0.0194222}
{0.323705, 0.929855, 0.0185394}

```

Syntax::bktmcp : Expression

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"For[i = 0, i ≤ 10, i++, fff[i_] := y /. FindRoot[FF[i*Vtb1/10] - y - Log[1/(c1^2*c2) (i*Vtb1/10 - Vf - y - (Psiwi[i*Vtb1/10] - y)/
Sqrt[1 + ((Psiwi[i*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1] == 0, {y, 0}]; Eps[i_] := 0.5 Sqrt[(2 fff[i] -
0.91 - Psiwi[i*Vtb1/10])^2 - (Psiwi[i*Vtb1/10] - 0.91)^2]; Print[{fff[i], Eps[i]}]"
has no closing "]".

```

Syntax::bktmcp :

Expression "(i\*Vtb1/10 - Vf - y - (Psiwi[i\*Vtb1/10] - y)/Sqrt[1 + ((Psiwi[i\*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1" has no closing ")".

Syntax::bktmcp : Expression "((Psiwi[i\*Vtb1/10] - y)/Sqrt[1 + ((Psiwi[i\*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1" has no closing ")".

Syntax::bktmcp : Expression "((Psiwi[i\*Vtb1/10] - y)/Sqrt[1 + ((Psiwi[i\*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1" has no closing ")".

Syntax::bktmcp : Expression "((Psiwi[i\*Vtb1/10] - y)/Sqrt[1 + ((Psiwi[i\*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1" has no closing ")".

Syntax::bktmcp : Expression "((Psiwi[i\*Vtb1/10] - y)/Sqrt[1 + ((Psiwi[i\*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1" has no closing ")".

Syntax::bktmcp : Expression "((Psiwi[i\*Vtb1/10] - y)/Sqrt[1 + ((Psiwi[i\*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1" has no closing ")".

Syntax::bktmcp : Expression "((Psiwi[i\*Vtb1/10] - y)/Sqrt[1 + ((Psiwi[i\*Vtb1/10] - y)/(4 c2))^2] - y/c2 + 1" has no closing ")".

Syntax::bktmcp : Expression "Sqrt[1 + (Psiwi[i\*Vtb1/10] - y)/(4 c2)" has no closing "]".

Syntax::bktmcp : Expression "Sqrt[1 + (Psiwi[i\*Vtb1/10] - y)/(4 c2)" has no closing "]".

SetDelayed::write : Tag Times in  $\left(0.01 \left(1 + \frac{-0.177688 + x}{\sqrt{0.02 + (-0.177688 + x)^2}}\right)\right)[x_]$  is Protected. >>

FindRoot::cvmit : Failed to converge to the requested accuracy or precision within 100 iterations. >>

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In[51]:= For[i = 21, i ≤ 100, i++,
  ff[i_] := y /. FindRoot[FF[i * Vtb1 / 20] - y - c2 * Log[(i * Vtb1 / 20 - Vf - y -
    (Psiwi[i * Vtb1 / 20] - y) / Sqrt[1 + ((Psiwi[i * Vtb1 / 20] - y) / (4 * c2)) ^
    2]) ^ 2 / (c1 ^ 2 * c2) - y / c2 + 1] == 0, {y, 0}];
  Eps[i_] := 0.5 Sqrt[(2 ff[i] - Psiwi[i * Vtb1 / 20] - c3) ^ 2 -
    (Psiwi[i * Vtb1 / 20] - c3) ^ 2];
  Print[{i * Vtb1 / 20, ff[i], Eps[i]}]]
```

```
{0.339891, 0.936971, 0.0168802}
{0.356076, 0.942012, 0.0146089}
{0.372261, 0.944851, 0.0125078}
{0.388446, 0.945951, 0.0117618}
{0.404632, 0.946112, 0.012645}
{0.420817, 0.945926, 0.0143836}
{0.437002, 0.945668, 0.0163203}
{0.453188, 0.94543, 0.0181861}
{0.469373, 0.945234, 0.0199063}
{0.485558, 0.945081, 0.0214743}
{0.501743, 0.944965, 0.0229038}
{0.517929, 0.944878, 0.0242127}
{0.534114, 0.944815, 0.0254177}
{0.550299, 0.94477, 0.0265335}
{0.566484, 0.944739, 0.0275722}
{0.58267, 0.94472, 0.028544}
{0.598855, 0.94471, 0.0294574}
{0.61504, 0.944706, 0.0303192}
{0.631225, 0.944709, 0.0311353}
{0.647411, 0.944715, 0.0319108}
{0.663596, 0.944726, 0.0326498}
{0.679781, 0.944739, 0.0333558}
{0.695967, 0.944754, 0.034032}
{0.712152, 0.944771, 0.034681}
{0.728337, 0.94479, 0.0353051}
{0.744522, 0.944809, 0.0359063}
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{0.760708, 0.944829, 0.0364864}
{0.776893, 0.94485, 0.037047}
{0.793078, 0.944872, 0.0375895}
{0.809263, 0.944894, 0.038115}
{0.825449, 0.944916, 0.0386247}
{0.841634, 0.944938, 0.0391197}
{0.857819, 0.94496, 0.0396007}
{0.874004, 0.944982, 0.0400687}
{0.89019, 0.945005, 0.0405244}
{0.906375, 0.945027, 0.0409684}
{0.92256, 0.945049, 0.0414013}
{0.938746, 0.945071, 0.0418238}
{0.954931, 0.945092, 0.0422363}
{0.971116, 0.945114, 0.0426394}
{0.987301, 0.945135, 0.0430334}
{1.00349, 0.945156, 0.0434189}
{1.01967, 0.945177, 0.0437961}
{1.03586, 0.945197, 0.0441654}
{1.05204, 0.945218, 0.0445272}
{1.06823, 0.945238, 0.0448818}
{1.08441, 0.945257, 0.0452294}
{1.1006, 0.945277, 0.0455704}
{1.11678, 0.945296, 0.045905}
{1.13297, 0.945316, 0.0462334}
{1.14915, 0.945334, 0.0465558}
{1.16534, 0.945353, 0.0468725}
{1.18152, 0.945371, 0.0471837}
{1.19771, 0.945389, 0.0474895}
{1.2139, 0.945407, 0.0477902}
{1.23008, 0.945425, 0.0480859}
{1.24627, 0.945442, 0.0483768}
{1.26245, 0.94546, 0.048663}
{1.27864, 0.945477, 0.0489447}
{1.29482, 0.945493, 0.049222}
{1.31101, 0.94551, 0.049495}
{1.32719, 0.945526, 0.0497639}
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{1.34338, 0.945542, 0.0500288}
{1.35956, 0.945558, 0.0502898}
{1.37575, 0.945574, 0.0505471}
{1.39193, 0.945589, 0.0508006}
{1.40812, 0.945605, 0.0510506}
{1.4243, 0.94562, 0.0512971}
{1.44049, 0.945635, 0.0515402}
{1.45667, 0.94565, 0.0517801}
{1.47286, 0.945664, 0.0520167}
{1.48904, 0.945678, 0.0522502}
{1.50523, 0.945693, 0.0524806}
{1.52142, 0.945707, 0.0527081}
{1.5376, 0.945721, 0.0529327}
{1.55379, 0.945734, 0.0531545}
{1.56997, 0.945748, 0.0533735}
{1.58616, 0.945761, 0.0535898}
{1.60234, 0.945774, 0.0538034}
{1.61853, 0.945787, 0.0540145}

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In[11]:=
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In[12]:=
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In[13]:=
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In[14]:=
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In[15]:=
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In[16]:=
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In[17]:=
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In[18]:=
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In[19]:=
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In[20]:=
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In[21]:=
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In[22]:=
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In[23]:=
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Out[23]= Null Null
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In[24]:= □
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Out[24]= □ Null
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In[25]:=
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In[26]:=
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In[27]:=
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In[28]:=
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In[29]:=
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In[30]:=
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In[31]:=
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In[32]:=
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