In[68]:=
```
DSolve[y''[x] - x y[x] == 0, y[x], x]
```
Out[68]=
```
{{y[x] → AiryAi[x] C[1] + AiryBi[x] C[2]}}
```

In[69]:=
```
DSolve[{y''[x] - x y[x] == 0, y[1] == 1, y'[1] == 2}, y[x], x]
```
Out[69]=
```
{{y[x] → (2 AiryAi[x] AiryBi[1] - 2 AiryAi[1] AiryBi[x] +
      AiryAiPrime[1] AiryBi[x] - AiryAi[x] AiryBiPrime[1]) /
    (AiryAiPrime[1] AiryBi[1] - AiryAi[1] AiryBiPrime[1])}}
```

In[70]:=
```
%[[1]][[1]][[2]]
```

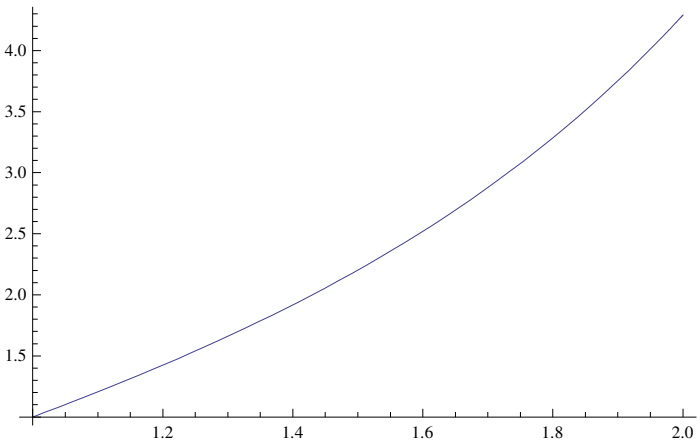
In[71]:=
```
Y[x_] := (2 AiryAi[x] AiryBi[1] - 2 AiryAi[1] AiryBi[x] +
     AiryAiPrime[1] AiryBi[x] - AiryAi[x] AiryBiPrime[1]) /
   (AiryAiPrime[1] AiryBi[1] - AiryAi[1] AiryBiPrime[1])
```

In[72]:=
```
Y[1]
```
Out[72]=
```
1
```

In[73]:=
```
Y'[1]
```
Out[73]=
```
(2 AiryAiPrime[1] AiryBi[1] - 2 AiryAi[1] AiryBiPrime[1]) /
 (AiryAiPrime[1] AiryBi[1] - AiryAi[1] AiryBiPrime[1])
```

In[74]:=
```
N[%]
```
Out[74]=
```
2.
```

In[75]:=
```
Plot[Y[x], {x, 1, 2}]
```
Out[75]=



In[76]:=
```
DSolve[x D[u[x, y], x] - y D[u[x, y], y] + y^2 u[x, y] == y^2, u[x, y], x, y]
```
Out[76]= $\left\{\left\{u[x, y] \to 1 + e^{\frac{y^2}{2}} C[1][x y]\right\}\right\}$

In[79]:=
```
DSolve[{D[u[x, y], {x, 2}] - D[u[x, y], {y, 2}] == 0}, u[x, y], x, y]
```
Out[79]=
```
{{u[x, y] → C[1][-x + y] + C[2][x + y]}}
```

In[80]:=
```
InverseLaplaceTransform[1 / (z (z - 1)^2), z, t]
```
Out[80]= $1 - e^t + e^t t$