figure 3.4 in text (page 92) was not too clear (it is black and white in my text book that I am using). So I reproduced it in color. This type of plot is needed to check what happens with the improvement in approximation for problem 3.42 (a) as more terms are added to leading behavior.
It is done in Wolfram Mathematica. Used 300 terms to find y(x). We see the red line, which is leading behavior/y(x) ratio going to 1 for large x as would be expected.

In[1]:=
```
leading[x] := 1/2 Pi^(-1/2) x^(-1/4) Exp[2 x^(1/2)];
y[x_, max_] := Sum[x^n/(Factorial[n]^2), {n, 0, max}];
LogLinearPlot[Evaluate[{leading[x]/y[x, 300], y[x, 10]/y[x, 300]}], {x, 0.001, 70000},
 PlotRange → All, Frame → True, GridLines → Automatic, GridLinesStyle → LightGray,
 PlotLegends → {"leading behavior/y(x)", "truncated Taylor/y(x)"}, FrameLabel →
  {{None, None}, {"x", "Reproducing figure 3.4 in text book"}}, PlotStyle → {Red, Blue}]
```

Out[3]=