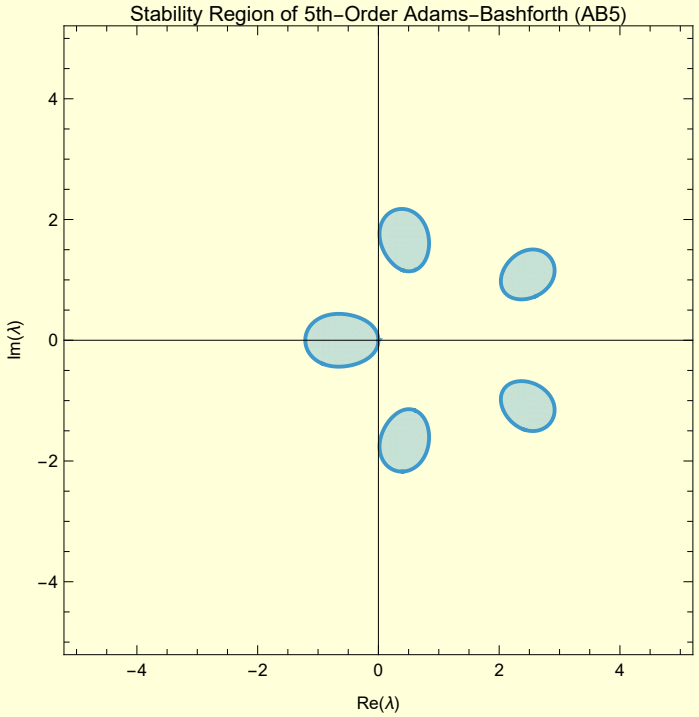
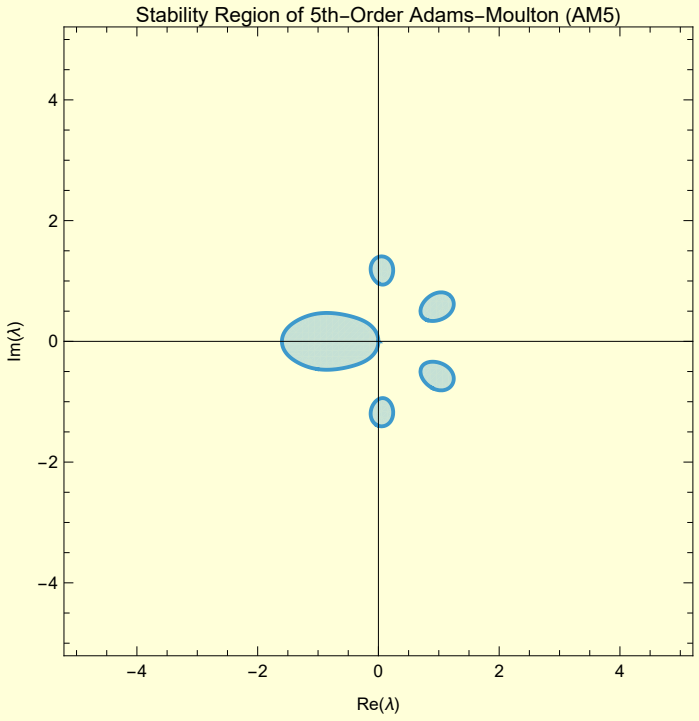
In[1]:=

```
(*Define the stability polynomial for the 5th-order Adams-Bashforth method*)
RAB5[λ_] := 1 + (190 λ - 277 λ^2 + 261 λ^3 - 127 λ^4 + 25 λ^5) / 720;
(*Define the stability polynomial for the 5th-order Adams-Moulton method*)
RAM5[λ_] := 1 + (190 λ - 277 λ^2 + 261 λ^3 - 127 λ^4 + 25 λ^5) / 720 + (190 λ^6) / 720;

(*Define the condition for stability (the modulus should be≤1)*)
stabilityConditionAB5[λ_] := Abs[RAB5[λ]] ≤ 1;
                             绝对值
stabilityConditionAM5[λ_] := Abs[RAM5[λ]] ≤ 1;
                             绝对值

(*Create a mesh of complex numbers (λ) in the complex plane*)
ReMin = -5; ReMax = 5;
ImMin = -5; ImMax = 5;

(*Plot the stability region for Adams-Bashforth AB5*)
  绘图
RegionPlot[stabilityConditionAB5[x + I y], {x, ReMin, ReMax}, {y, ImMin, ImMax},
绘制区域                                   虚数单位
 PlotPoints → 100, AspectRatio → 1, FrameLabel → {"Re(λ)", "Im(λ)"},
 绘图点            宽高比           边框标签          实部      虚部
 PlotLabel → "Stability Region of 5th-Order Adams-Bashforth (AB5)", Axes → True]
 绘图标签                 几何区域        标准排序符号                    坐标轴  真

(*Create a mesh of complex numbers (λ) in the complex plane*)
RegionPlot[stabilityConditionAM5[x + I y], {x, ReMin, ReMax}, {y, ImMin, ImMax},
绘制区域                                   虚数单位
 PlotPoints → 100, AspectRatio → 1, FrameLabel → {"Re(λ)", "Im(λ)"},
 绘图点            宽高比           边框标签          实部      虚部
 PlotLabel → "Stability Region of 5th-Order Adams-Moulton (AM5)", Axes → True]
 绘图标签                 几何区域        标准排序符号                    坐标轴  真
```

Out[7]=


Stability Region of 5th−Order Adams−Bashforth (AB5)
Im(λ)
Re(λ)
4
2
0
−2
−4
−4
−2
0
2
4

Out[8]=


Stability Region of 5th−Order Adams−Moulton (AM5)
Im(λ)
Re(λ)
4
2
0
−2
−4
−4
−2
0
2
4