

Pensieve Header: Plotting 2-variable polynomials.

```
In[*]:= Print[
  "Loading PolyPlot.m from http://drorbn.net/ubc24/ap to plot 2-variable polynomials."]
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```
PolyPlot[{Δ, θ}] := Module[{crs, m, m1, m2, maxc, minc, s, rect, hex}, GraphicsColumn[{
  rect = {{0, 0}, {1, 0}, {1, 1}, {0, 1}};
  hex = Table[{Cos[α], Sin[α]} / Cos[2 π / 12] / 2, {α, 2 π / 12, 2 π, 2 π / 6}];
  If[Expand[Δ] === 0, Graphics[],
    m = Max[-Exponent[Δ, T, Min], Exponent[Δ, T, Max]];
    crs = CoefficientRules[Tm Δ, {T}];
    maxc = N@Log@Max@Abs[Last /@ crs];
    minc = N@Log@Min@Select[Abs[Last /@ crs], # > 0 &];
    If[minc == maxc, s[_] = 0, s[c_] := s[c] = (maxc - Log@c) / (maxc - minc)];
    Graphics[crs /. ({x_} → c_) := {
      Lighter[Which[c == 0, White, c > 0, Red, c < 0, Blue], 0.88 s[Abs@c]],
      Tooltip[Polygon[{(x + m - 1 / 2, 0) + #} & /@ rect], c]
    }, AspectRatio → Min[1 / 5, 1 / √(m + 1)],
    ImagePadding → None, PlotRangePadding → None]
  ],
  If[Expand[θ] === 0, Graphics[{White, Disk[]}],
    m1 = Max[-Exponent[θ, T1, Min], Exponent[θ, T1, Max]];
    m2 = Max[-Exponent[θ, T2, Min], Exponent[θ, T2, Max]];
    crs = CoefficientRules[T1m1 T2m2 θ, {T1, T2}];
    maxc = N@Log@Max@Abs[Last /@ crs];
    minc = N@Log@Min@Select[Abs[Last /@ crs], # > 0 &];
    If[minc == maxc, s[_] = 0, s[c_] := s[c] = (maxc - Log@c) / (maxc - minc)];
    Graphics[{{White, Disk[{0, 0}, 1 + Cos[2 π / 12] Norm[{m1, m2}] / √2]},
      crs /. ({x1_, x2_} → c_) := {
        Lighter[Which[c == 0, White, c > 0, Red, c < 0, Blue], 0.88 s[Abs@c]],
        Tooltip[Polygon[{{(1 - 1 / 2)
          (0 √3 / 2)}.{x1 - m1, x2 - m2} + #} & /@ hex], c]
      }
    }, ImagePadding → None, PlotRangePadding → None]
  ]
}, Spacings → Scaled@0.08, ImagePadding → None, PlotRangePadding → None];
```

In[ ]:= PolyPlot@ $\left\{-1 + \frac{1}{T} + T, -\frac{1}{T_1^2} - T_1^2 - \frac{1}{T_2^2} - \frac{1}{T_1^2 T_2^2} + \frac{1}{T_1 T_2^2} + \frac{1}{T_1^2 T_2} + \frac{T_1}{T_2} + \frac{T_2}{T_1} + T_1^2 T_2 - T_2^2 + T_1 T_2^2 - T_1^2 T_2^2\right\}$

Out[ ]:=

