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> # 2つの座標系によるDOVALH・E'21 -12-23 :
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> with(plots, implicitplot) :
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> # Doval using polar Corodinate by H.E:
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> R :=  $\frac{C}{M^2 - N^2} \cdot \left( M \cdot K - N^2 \cdot \cos(s) - N \cdot \left( N^2 \cdot \cos(s)^2 - 2 \cdot K \cdot M \cdot \cos(s) + K^2 + M^2 - N^2 \right)^{\frac{1}{2}} \right)$  : RI := subs(M=9, N=6, K=10, C=1, R) : RO :=
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subs(M=9, N=-6, K=10, C=1, R) :
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> xi := RI*cos(s) : yi := RI*sin(s) + 12 : xo := RO*cos(s) : yo := RO*sin(s) + 12 : DIN := plot([xi, yi, s=0..2*Pi], color=red, scaling=constrained) : DOUT := plot([xo, yo, s=0..2*Pi], color=red, scaling=constrained) :
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> # Standard Fomula of Doval using X-Y corodinate by H.E:`
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> k := 10 : m := 9 : n := 6 : c := 1 :
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> DORs := implicitplot  $\left( (m^2 - n^2)^2 \cdot \left( y^2 + \left( x + \frac{n^2 \cdot c}{m^2 - n^2} \right)^2 - \frac{(k^2 \cdot m^2 + k^2 \cdot n^2 + m^2 \cdot n^2) \cdot c^2}{(m^2 - n^2)^2} \right)^2 - \frac{8 \cdot k^2 \cdot m^2 \cdot n^2 \cdot c^3}{m^2 - n^2} \cdot \left( x + \frac{n^2 \cdot c}{m^2 - n^2} \right) + \frac{4 \cdot k^2 \cdot m^2 \cdot n^2 \cdot (k^2 + m^2 + n^2) \cdot c^4}{(m^2 - n^2)^2} \right)$ , x=-6..2, y=-5..5, color=blue, scaling=constrained) :
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```
> print(display({DIN, DOUT, DORs}));
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