ДОДАТОК А

Адаптованість системи, що допускає катастрофу типу збірки

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Clear["Global`*"]
{a22, a11} = {3, 1};
v = Re[a20 /. First[
      N[Simplify[Solve[a11 == 1/Sqrt[3] * (a20)^(1/2) * (a22 - a20) + 2/(3 Sqrt[3]) (a20)^(3/2), a20]]]]];
n = Re[a20 /. First[N[Simplify[Solve[
          a11 == -1/Sqrt[3] * (a20)^(1/2) * (a22 - a20) - (2/(3 Sqrt[3]) (a20)^(3/2)), a20]]]]];
Pv = a2 * Sqrt[v/3] - v Sqrt[v/3] + 2/(3 Sqrt[3]) * (v)^(3/2);
Pn = -a2 * Sqrt[n/3] + n Sqrt[n/3] - 2/(3 Sqrt[3]) * (n)^(3/2);
Kv = N[Sqrt[v/3]];
Kn = N[-Sqrt[n/3]];
ϕv = ArcTan[Kv] / Degree;
ϕn = ArcTan[Kn] / Degree;
ϕ = Abs[ϕv] + Abs[ϕn];
Print["Угол адаптируемости ", ϕ, "°"]
Plot[{-(2 / (3 * (3^(1/2)))) * a2^(3/2), (2 / (3 * (3^(1/2)))) * a2^(3/2), Pv, Pn}, {a2, 0, 15},
 Epilog → {AbsolutePointSize[5], Point[{a22, a11}]}, AspectRatio → Automatic]

Clear["Global`*"]
{x0, y0, R, n, m, a} = {3, 1, 5, 3, 5, -(π/3)};
Show[{Plot[{-(2 / (3 * (3^(1/2)))) * a2^(3/2), (2 / (3 * (3^(1/2)))) * a2^(3/2)}, {a2, 0, 5},
    Epilog → {AbsolutePointSize[5], Point[{x0, y0}]}, AspectRatio → Automatic],
   ParametricPlot[{x0 + R * Cos[t]/n Cos[a] - R * Sin[t]/m Sin[a],
     y0 + R * Cos[t]/n Sin[a] + R * Sin[t]/m Cos[a]}, {t, 0, 2 Pi}]}]
V = Length[NSolve[{0 == -A2 + x0 + R * Cos[t]/n Cos[a] - R * Sin[t]/m Sin[a],
       0 == -A1 + y0 + R * Cos[t]/n Sin[a] + R * Sin[t]/m Cos[a],
       (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]];
Nn = Length[NSolve[{0 == -A2 + x0 + R * Cos[t]/n Cos[a] - R * Sin[t]/m Sin[a],
       0 == -A1 + y0 + R * Cos[t]/n Sin[a] + R * Sin[t]/m Cos[a],
       -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]];
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Yv = 0;
Yn = 0;
If[V == 2,
  Yv =
   (Abs[((t /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a], 0 ==
                -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
               (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]) -
       (t /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
           0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
           (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]])]) /
    Degree];
If[Nn == 2,
  Yn =
   (Abs[((t /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a], 0 ==
                -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
               -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]) -
       (t /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
           0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
           -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]])]) /
    Degree];
Y = (360 - (Yv + Yn));
If[V == 2 || Nn == 2, Print["Угол адаптируемости ", Y, "°"]]
If[V == 2,
  Lvx = Min[A2 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
       0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
       (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
    A2 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
       0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
       (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
If[V == 2,
  Pvx = Max[A2 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
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        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
    A2 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
If[V == 2,
  Lvy = Min[A1 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
    A1 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
If[V == 2,
  Pvy = Max[A1 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
    A1 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        (2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
If[Nn == 2,
  Lnx = Min[A2 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
    A2 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
If[Nn == 2,
  Pnx = Max[A2 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
        0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
        -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
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    A2 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
          0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
          -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
If[Nn == 2,
  Lny = Max[A1 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
          0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
          -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
    A1 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
          0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
          -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
If[Nn == 2,
  Pny = Min[A1 /. First[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
          0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
          -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]],
    A1 /. Last[NSolve[{0 == -A2 + x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
          0 == -A1 + y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a],
          -(2 / (3 * (3^(1/2)))) * A2^(3/2) - A1 == 0, 0 ≤ t < 2 Pi}, {A1, A2, t}]]];
NEl[x_] := y /. First[Solve[((Cos[a] (x - x0) + Sin[a] (y - y0))/(R / n))^2 +
      ((Cos[a] (y - y0) - Sin[a] (x - x0))/(R / m))^2 == 1, y]];
VEl[x_] := y /. Last[Solve[((Cos[a] (x - x0) + Sin[a] (y - y0))/(R / n))^2 +
      ((Cos[a] (y - y0) - Sin[a] (x - x0))/(R / m))^2 == 1, y]];
min = First[FindMinimum[x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a], {t, 0, 2 π}]];
max = First[FindMaximum[x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a], {t, 0, 2 π}]];
Sv = 0;
If[V == 2,
  Sv = Sv + Re[(Integrate[(VEl[x]) - ((2 / (3 * (3^(1/2)))) * x^(3/2)), {x, Lvx, Pvx}])]];
If[V == 2 && Re[First[y /. Solve[y == VEl[x] && x == min, y]]] > Lvy,
  Sv = Sv + Re[(Integrate[(VEl[x]) - (NEl[x]), {x, min, Lvx}])]];
If[V == 2 && Re[First[y /. Solve[y == VEl[x] && x == max, y]]] > Pvy,
  Sv = Sv + Re[(Integrate[(VEl[x]) - (NEl[x]), {x, Pvx, max}])]];
Sn = 0;
If[Nn == 2,
  Sn = Sn + Re[(Integrate[(- ((2 / (3 * (3^(1/2)))) * x^(3/2)) - (NEl[x])), {x, Lnx, Pnx}])]];
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If[Nn == 2 && Re[First[y /. Solve[y == VEl[x] && x == min, y]]] < Lny,
  Sn = Sn + Re[(Integrate[(VEl[x]) - (NEl[x]), {x, min, Lnx}])]];
If[Nn == 2 && Re[First[y /. Solve[y == VEl[x] && x == max, y]]] < Pny,
  Sn = Sn + Re[(Integrate[(VEl[x]) - (NEl[x]), {x, Pnx, max}])]];

SEl = N[Integrate[(VEl[x]) - (NEl[x]), {x, min, max}]];
SF = SEl - (Sv + Sn);
If[SF > 0, A = (SF / SEl) * 100, A = 0];
If[V == 2 || Nn == 2,
 Print["Площадь адаптируемости ", SF, " из ", SEl, " --- ", A, "%"],
 Print["Область не пересекается с кривыми катастрофы"]]
Show[{Plot[{-(2 / (3 * (3^(1/2)))) * a2^(3/2), (2 / (3 * (3^(1/2)))) * a2^(3/2)}, {a2, 0, max + 1},
    Epilog → {AbsolutePointSize[5], Point[{x0, y0}]}, AspectRatio → Automatic],
  ParametricPlot[{x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
    y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a]}, {t, 0, 2 Pi}]}]
Clear["Global`*"]
{x0, y0, R, n, m, a} = {3, 1, 5, 3, 5, -(π/3)};
FR[t_] := 1 - e^(-t^2);
{xt, yt} = {3, 0.5};
Show[{Plot[{-(2 / (3 * (3^(1/2)))) * a2^(3/2), (2 / (3 * (3^(1/2)))) * a2^(3/2)}, {a2, 0, 5},
    Epilog → {AbsolutePointSize[5], Point[{xt, yt}]}, AspectRatio → Automatic],
  ParametricPlot[{x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a],
    y0 + (R * Cos[t])/n Sin[a] + (R * Sin[t])/m Cos[a]}, {t, 0, 2 Pi}]}]
PR[t_] := FR'[t];
NEl[x_] := y /. First[Solve[((Cos[a] (x - x0) + Sin[a] (y - y0))/(R / n))^2 +
    ((Cos[a] (y - y0) - Sin[a] (x - x0))/(R / m))^2 == 1, y]];
VEl[x_] := y /. Last[Solve[((Cos[a] (x - x0) + Sin[a] (y - y0))/(R / n))^2 +
    ((Cos[a] (y - y0) - Sin[a] (x - x0))/(R / m))^2 == 1, y]];
min = First[FindMinimum[x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a], {t, 0, 2 π}]];
max = First[FindMaximum[x0 + (R * Cos[t])/n Cos[a] - (R * Sin[t])/m Sin[a], {t, 0, 2 π}]];

xxv[f_] := Re[Last[x /. NSolve[(2 / (3 * (3^(1/2)))) * x^(3/2) == Tan[f] * (x - xt) + yt, x]]];
xxv[π/2] = xt;
xxv[(3 π)/2] = xt;
yyv[f_] := (2 / (3 * (3^(1/2)))) * (xxv[f])^(3/2);
rrv[f_] := √(((xxv[f]) - xt)^2 + ((yyv[f]) - yt)^2);
xxn[f_] :=
  Re[Last[x /. NSolve[-(2 / (3 * (3^(1/2)))) * x^(3/2) == Tan[f] * (x - xt) + yt, x]]];
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xxn[π/2] = xt;
xxn[3π/2] = xt;
yyn[f_] := -(2 / (3 * (3^(1/2)))) * (xxv[f])^(3/2);
rrn[f_] := √(((xxv[f]) - xt)^2 + ((yyv[f]) - yt)^2);
XXV[f_] := Last[x /. NSolve[VEl[x] == Tan[f] * (x - xt) + yt, x]];
XXV[π/2] = xt;
XXV[3π/2] = xt;
YYV[f_] := VEl[XXV[f]];
RRV[f_] := √(((XXV[f]) - xt)^2 + ((YYV[f]) - yt)^2);
XXN[f_] := Last[x /. NSolve[NEl[x] == Tan[f] * (x - xt) + yt, x]];
XXN[π/2] = xt;
XXN[3π/2] = xt;
YYN[f_] := NEl[XXN[f]];
RRN[f_] := √(((XXN[f]) - xt)^2 + ((YYN[f]) - yt)^2);

maxf = First[f /. Solve[(yt - VEl[max])/(xt - max) == Tan[f], f]];
If[maxf < 0, maxf = maxf + 2π, maxf = maxf];
minf = First[f /. Solve[(yt - VEl[min])/(xt - min) == Tan[f], f]] + π;
Of = First[f /. Solve[yt/xt == Tan[f], f]] + π + 0.001;
arf = Sort[{0, minf, Of, maxf, 2.π}];
arf1 = {0, maxf, Of, minf, 2.π};
arf2 = {0, maxf, minf, Of, 2.π};
arf3 = {0, Of, minf, maxf, 2.π};
arf4 = {0, minf, Of, maxf, 2.π};

If[arf == arf1,
  Ich = (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[1]]) * 360, (arf[[2]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[2]]) * 360, (arf[[3]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[3]]) * 360, (arf[[4]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[4]]) * 360, (arf[[5]]) * 360}]])];
If[arf == arf2,
  Ich = (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[1]]) * 360, (arf[[2]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[2]]) * 360, (arf[[3]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[3]]) * 360, (arf[[4]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[4]]) * 360, (arf[[5]]) * 360}]])];
If[arf == arf3,
  Ich = (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[1]]) * 360, (arf[[2]]) * 360}]] +
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    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[2]]) * 360, (arf[[3]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[3]]) * 360, (arf[[4]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[4]]) * 360, (arf[[5]]) * 360}]])];
If[arf == arf4,
  Ich = (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[1]]) * 360, (arf[[2]]) * 360}]] +

    (N[Sum[PR[((f) / 360)] * (Min[Re[rrv[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[2]]) * 360, (arf[[3]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRN[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[3]]) * 360, (arf[[4]]) * 360}]] +
    (N[Sum[PR[((f) / 360)] * (Min[Re[rrn[((f) / 360)]], Re[RRV[((f) / 360)]]]) *
        (1 / 360), {f, (arf[[4]]) * 360, (arf[[5]]) * 360}]])];
If[maxf < minf,
  Iz = (N[Sum[PR[((f) / 360)] * (Re[RRN[((f) / 360)]]) * (1 / 360),
      {f, (0) * 360, (maxf) * 360}]]) +
    (N[Sum[PR[((f) / 360)] * (Re[RRV[((f) / 360)]]) * (1 / 360),
      {f, (maxf) * 360, (minf) * 360}]]) +
    (N[Sum[PR[((f) / 360)] * (Re[RRN[((f) / 360)]]) * (1 / 360),
      {f, (minf) * 360, (2 π) * 360}]]),
  Iz = (N[Sum[PR[((f) / 360)] * (Re[RRV[((f) / 360)]]) * (1 / 360),
      {f, (0) * 360, (minf) * 360}]]) +
    (N[Sum[PR[((f) / 360)] * (Re[RRN[((f) / 360)]]) * (1 / 360),
      {f, (minf) * 360, (maxf) * 360}]]) +
    (N[Sum[PR[((f) / 360)] * (Re[RRV[((f) / 360)]]) * (1 / 360),
      {f, (maxf) * 360, (2 π) * 360}]])];
Adapt = (Ich / Iz) * 100;
Print["Адаптируемость --- ", NumberForm[Adapt, 3], "%"]
Show[{Plot[{-(2 / (3 * (3^(1/2)))) * a2^(3/2), (2 / (3 * (3^(1/2)))) * a2^(3/2)}, {a2, 0, max + 1},
    Epilog → {AbsolutePointSize[5], Point[{xt, yt}]}, AspectRatio → Automatic],
  ParametricPlot[{x0 + (R * Cos[t]) / n Cos[a] - (R * Sin[t]) / m Sin[a],
    y0 + (R * Cos[t]) / n Sin[a] + (R * Sin[t]) / m Cos[a]}, {t, 0, 2 Pi}]}]
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ВІДОМІСТЬ АТЕСТАЦІЙНОЇ РОБОТИ

Позначення	Найменування	Дод. відомості
	Текстові документи	
1	Пояснювальна записка	70 с.
2	Презентаційний матеріал	25 с.
	Інші документи	
3	Роздруківки програм	7 с.
4	Рецензія	2 с.
5	Відгук керівника	1 с.

					Дослідження адаптованості динамічних процесів в системах з захистом			
Змін	**Арк.**	**Номер докум.**	**Підп.**	**Дата**				
Розроб.		**Семенцова Н.А.**			**(Тема роботи) Відомість атестаційної роботи**		**Аркуш**	**Аркушів**
Перевір.		**Наумейко І.В.**						
Н. контр.		**Сидоров М.В.**				**ХНУРЕ Кафедра ПМ**		
Затв.		**Тевяшев А.Д.**						