

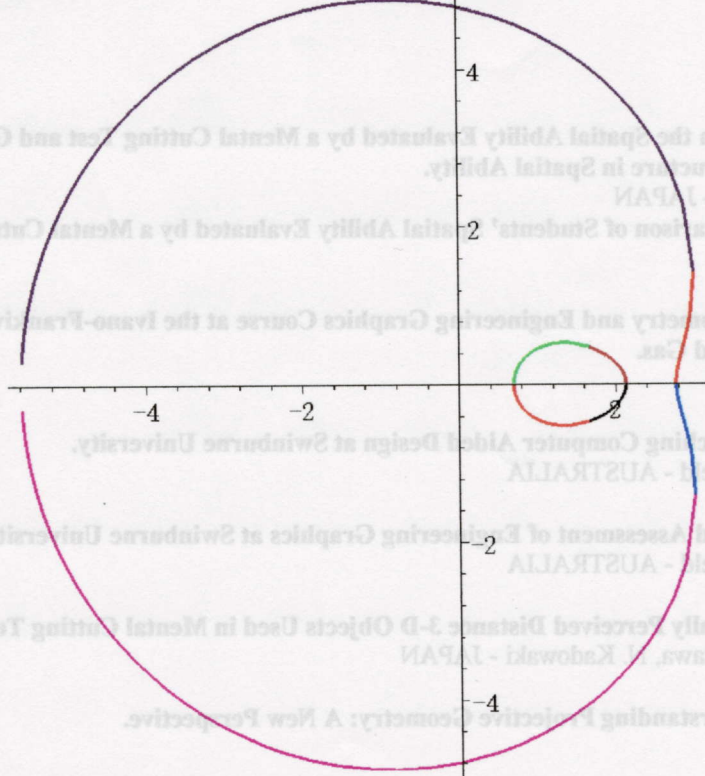
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[ > # chokukyokuten ni yoru oval no ippanka:
[ > restart:
[ > with(plots):
[ > # U1,U2 x4 yori y4 wo motomeru U4(x4,y4):
[ > y4:=(y2-y1)*(x4-x1)/(x2-x1)+y1:
[ > # U1,U3 x5 yori y5 wo mptpmeru U5(x5,y5):
[ > y5:=(y3-y1)*(x5-x1)/(x3-x1)+y1:
[ > # U2-U3 and U4-U5 kouten U6(x6,y6):
[ > xx:=solve({y=(y3-y2)*(x-x2)/(x3-x2)+y2,y=(y5-y4)*(x-x4)/(x5-x4)+y4},{x,y}):
[ > # solve no kekka xx[1]=y to naru tokigaaru tame tuginosiki de tasikme x6,y6 wo kimeru:
[ > ss:=lhs(xx[1]):if ss='x' then l:=1: m:=2 else l:=2 : m:=1: fi :
[ > x6:=rhs(xx[l]):
[ > y6:=rhs(xx[m]):
[ > xy56:=solve({y=-x3-x2)*(x-x5)/(y3-y2),y=-x3-x1*(x-x6)/(y3-y1)},{x,y}):
[ > ss:=lhs(xy56[1]):if ss='x' then l:=1: m:=2 else l:=2 : m:=1: fi :
[ > qx4:=rhs(xy56[l]):
[ > qy4:=rhs(xy56[m]):
[ > xy12:=solve({y=-x3-x2)*(x-x1)/(y3-y2),y=-x3-x1*(x-x2)/(y3-y1)},{x,y}):
[ > ss:=lhs(xy12[1]):if ss='x' then l:=1: m:=2 else l:=2 : m:=1: fi :
[ > qx1:=rhs(xy12[l]):
[ > qy1:=rhs(xy12[m]):
[ > qxy14:=solve({y=-x5-x4)*(x-qx1)/(y5-y4),y=-x2-x1*(x-qx4)/(y2-y1)},{x,y}):
[ > ss:=lhs(qxy14[1]):if ss='x' then l:=1: m:=2 else l:=2 : m:=1: fi :
[ > cx:=rhs(qxy14[l]):
[ > cy:=rhs(qxy14[m]):
[ > # chocoid 3 oval
[ > colorpared:=[magenta,blue,brown,green,orange,black,red,violet]:
[ >
[ > #colorpared:=[black,red,black,red,black,red,black,red]:
[ > j:=0:
[ > for i1 from -1 to 1 by 2 do
[ >   for i2 from -1 to 1 by 2 do
[ >     for i3 from -1 to 1 by 2 do j:=j+1:
[ >       XD[j]:=subs(x1=1,y1=i1*sqrt(t-1),x2=2,y2=i2*sqrt(2*t-2^2),x3=3,y3=i3*sqrt(3*t-3^2),q
[ >         x1):
[ >       YD[j]:=subs(x1=1,y1=i1*sqrt(t-1),x2=2,y2=i2*sqrt(2*t-2^2),x3=3,y3=i3*sqrt(3*t-3^2),q
[ >         y1):
[ >       f[j]:=plot([XD[j],YD[j],t=3..5000],numpoints=1000,color=colorpared[(i1+3)*2+(i2+3)+(i3
[ >         +3)/2-6]):od;od;od;
[ > #-----:
[ > XD[1];
[ >
[ > YD[1];
[ >
[ >
[ > display((seq(f[i],i=1..8)));

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$$XD[1] = \frac{-4\sqrt{2t-4} + \sqrt{t-1} + 3\sqrt{3t-9}}{\sqrt{3t-9} + \sqrt{t-1} - 2\sqrt{2t-4}}$$

$$YD[1] = \frac{1}{2\sqrt{3t-9} + \sqrt{t-1} - 2\sqrt{2t-4}}$$



```
> # chocoid no 3 oval siki:
> colorpared:=[magenta,blue,brown,green,orange,black,red,violet];
>
> XDD:=subs(x1=1,y1=sqrt(t-1),x2=2,y2=sqrt(2*t-2^2),x3=3,y3=sqrt(3*t-3^2),qx1);
YDD:=subs(x1=1,y1=sqrt(t-1),x2=2,y2=sqrt(2*t-2^2),x3=3,y3=sqrt(3*t-3^2),qy1);
```

$$XDD := \frac{4\sqrt{2t-4} - \sqrt{t-1} - 3\sqrt{3t-9}}{-\sqrt{3t-9} - \sqrt{t-1} + 2\sqrt{2t-4}}$$

$$YDD := 2 \frac{1}{-\sqrt{3t-9} - \sqrt{t-1} + 2\sqrt{2t-4}}$$

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> subs(t=6,XDD);
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$$\frac{4\sqrt{8} - \sqrt{5} - 3\sqrt{9}}{-\sqrt{9} - \sqrt{5} + 2\sqrt{8}}$$

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> evalf(%,30);
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.184512962167971684730678572460

```
> # chocoid 5-Rensa 4
> j:=0: b1:=1 : b2:=2 : b3:=3 : b4:=5 :
> for a1 from -7 to 5 by 1+5/23 do if b4+a1=b1 or b4+a1=b2 or
b4+a1=subs(x1=b1,x2=b2,x3=b3,x4=b4,x5=b4+a1,x6) or b4+a1=b3 or b4+a1=b4 then
print ('next') else
for i1 from -1 to 1 by 2 do
for i2 from -1 to 1 by 2 do
for i3 from -1 to 1 by 2 do j:=j+1:
XD[j]:=subs(x1=b1,y1=i1*sqrt(b1*t-b1^2),x2=b2,y2=i2*sqrt(b2*t-b2^2),x3=b3,y3=i3*
qrt(b3*t-b3^2),x4=b4,x5=b4+a1,cx):
YD[j]:=subs(x1=b1,y1=i1*sqrt(b1*t-b1^2),x2=b2,y2=i2*sqrt(b2*t-b2^2),x3=b3,y3=i3*
qrt(b3*t-b3^2),x4=b4,x5=b4+a1,cy):
f[j]:=plot([XD[j],YD[j],t=b3..5000],numpoints=1000,color=colorpared[(i1+3)*2+(i2+3)+(i
3+3)/2-6]):od;od;od;print
('x1'=b1,'x2'=b2,'x3'=b3,'x4'=b4,'x5'=b4+a1,'x6'=subs(x1=b1,x2=b2,x3=b3,x4=b4,x5=b4+a
1,x6)): fi; od;
```

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = -2, x6 = \frac{13}{11}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{-18}{23}, x6 = \frac{109}{75}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{10}{23}, x6 = \frac{355}{197}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{38}{23}, x6 = \frac{383}{169}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{66}{23}, x6 = \frac{137}{47}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{94}{23}, x6 = \frac{439}{113}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{122}{23}, x6 = \frac{467}{85}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{150}{23}, x6 = \frac{165}{19}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{178}{23}, x6 = \frac{523}{29}$$

$$x1 = 1, x2 = 2, x3 = 3, x4 = 5, x5 = \frac{206}{23}, x6 = 551$$

> **Chocoid 連鎖4 媒介変数表示1**

> XD[1];

$$\frac{52\sqrt{2t-4}\sqrt{3t-9} + 44\sqrt{t-1}\sqrt{3t-9} - 548t + 1108 + 220\sqrt{t-1}\sqrt{2t-4}}{(\sqrt{3t-9} + \sqrt{t-1} - 2\sqrt{2t-4})(-11\sqrt{3t-9} + 22\sqrt{2t-4} - 11\sqrt{t-1})}$$

> YD[1];

$$\frac{70\sqrt{3t-9} - 154\sqrt{t-1} + 84\sqrt{2t-4}}{-132t + 286 + 44\sqrt{2t-4}\sqrt{3t-9} + 44\sqrt{t-1}\sqrt{2t-4} - 22\sqrt{t-1}\sqrt{3t-9}}$$

> XD[57];

$$\left(\frac{1980}{23}\sqrt{2t-4}\sqrt{3t-9} - \frac{118980}{529}t + \frac{276060}{529} - \frac{17100}{529}\sqrt{t-1}\sqrt{3t-9} + \frac{1140}{23}\sqrt{t-1}\sqrt{2t-4} \right) / \left((\sqrt{3t-9} + \sqrt{t-1} - 2\sqrt{2t-4}) \left(\frac{114}{23}\sqrt{2t-4} - \frac{57}{23}\sqrt{3t-9} - \frac{57}{23}\sqrt{t-1} \right) \right)$$

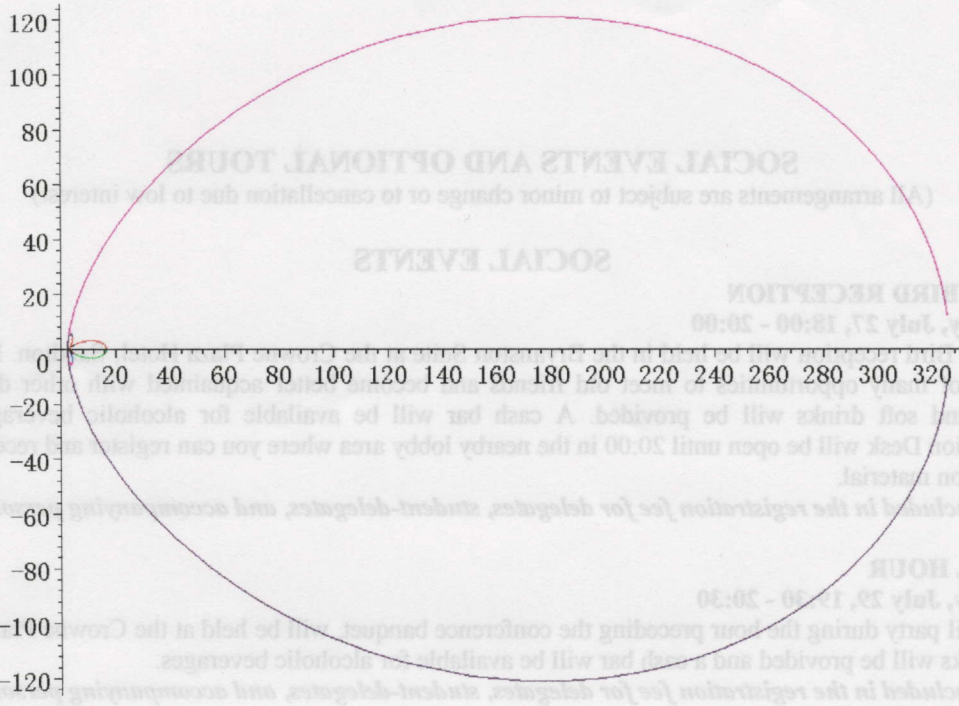
> YD[57];

$$\frac{\frac{5670}{529}\sqrt{3t-9} + \frac{3990}{529}\sqrt{t-1} - \frac{420}{23}\sqrt{2t-4}}{-\frac{684}{23}t + \frac{1482}{23} + \frac{228}{23}\sqrt{2t-4}\sqrt{3t-9} - \frac{114}{23}\sqrt{t-1}\sqrt{3t-9} + \frac{228}{23}\sqrt{t-1}\sqrt{2t-4}}$$

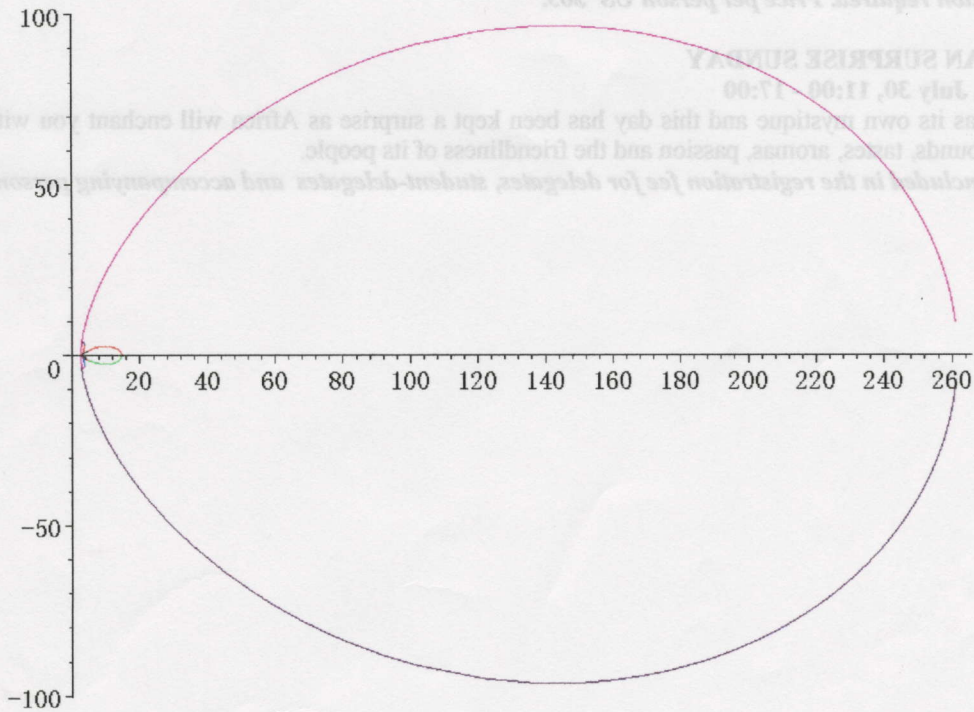
>

>

> for jj from 1 to 10 do display((seq(f[i],i=((jj-1)*8+1..(jj-1)*8+8))) od;



$$x_1 = 1, x_2 = 2, x_3 = 3, x_4 = 5, x_5 = -2, x_6 = \frac{13}{11}$$



$$x_1 = 1, x_2 = 2, x_3 = 3, x_4 = 5, x_5 = \frac{-18}{23}, x_6 = \frac{109}{75}$$