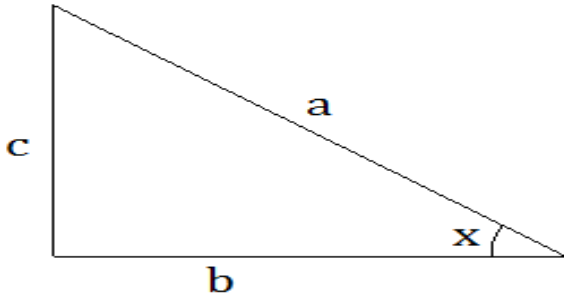


Funcții trigonometrice

Trigonometrie



$$\sin(x) = \frac{c}{a}$$

$$\cos(x) = \frac{b}{a}$$

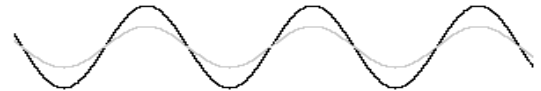
$$\operatorname{tg}(x) = \frac{c}{b}$$

$$\operatorname{ctg}(x) = \frac{b}{c}$$

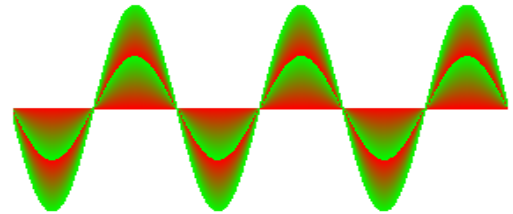
$$f(x) = \sin(x)$$



$$f(x) = 2 \cdot \sin(x)$$



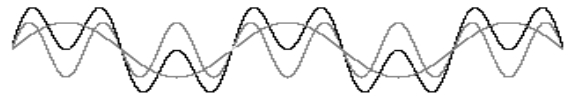
$$f(x) = a \cdot \sin(x)$$
$$a \in [0, 3]$$



$$f(x) = \sin(2x)$$



$$f(x) = \sin(x) + \sin(3x)$$


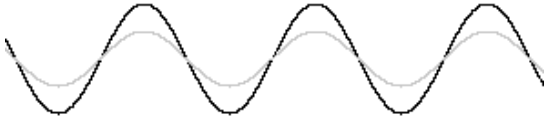
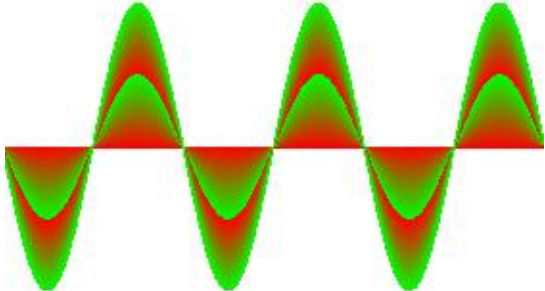



$$f(x) = \sin(x) + 3$$



$$f(x) = \sin(x+1)$$

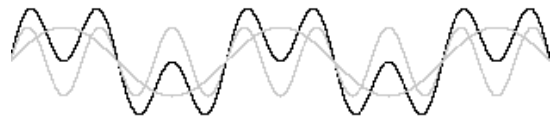


<pre>float x,y,cx=400,cy=250,d=30; for(x=-10;x<=10;x+=0.0005) { y=sin(x); pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0)); }</pre>	
<pre>float x,y,cx=400,cy=250,d=30; for(x=-10;x<=10;x+=0.0005) { y=2*sin(x); pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0)); }</pre>	
<pre>float x,y,cx=400,cy=250,d=30,a; for(a=0;a<=5;a+=0.01) for(x=-20;x<=20;x+=0.005) { y=a*sin(x); pDC->SetPixel(x*d+cx,-y*d+cy, RGB(255-a*100,a*100,0)); }</pre>	
<pre>float x,y,cx=400,cy=250,d=30; for(x=-10;x<=10;x+=0.0005) { y=sin(2*x); pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0)); }</pre>	

```

float x,y,cx=400,cy=250,d=30;
for(x=-10;x<=10;x+=0.0005)
{
  y=sin(x)+sin(3*x);
  pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0));
}

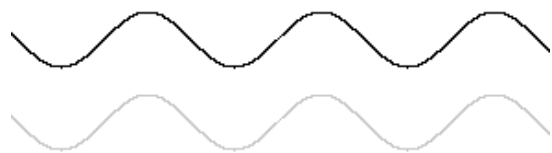
```



```

float x,y,cx=400,cy=250,d=30;
for(x=-10;x<=10;x+=0.0005)
{
  y=sin(x)+3;
  pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0));
}

```



```

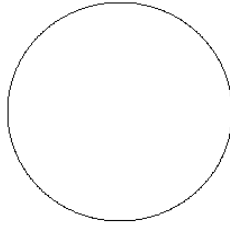
float x,y,cx=400,cy=250,d=30;
for(x=-10;x<=10;x+=0.0005)
{
  y=sin(x+1);
  pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0));
}

```

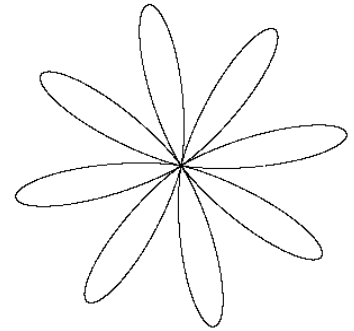


Cum sa desenam flori cu ajutorul functiilor trigonometrice

Ec. cercului
 $x^2 + y^2 = r^2 \quad r = \text{cst}$

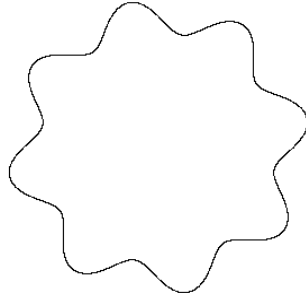


$x = r \cdot \cos(t)$
 $y = r \cdot \sin(t)$
 $t \in [0, 2\pi]$,
 $r = R(1 + \sin(8t))$
 $R = \text{cst}$

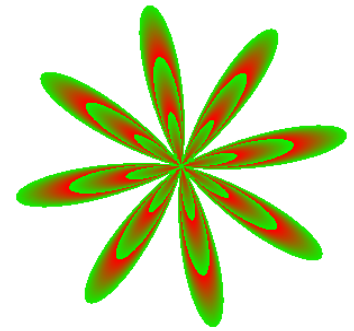


Ec. parametrice
 $x = r \cdot \cos(t)$
 $y = r \cdot \sin(t)$
 $t \in [0, 2\pi]$, $r = \text{cst}$

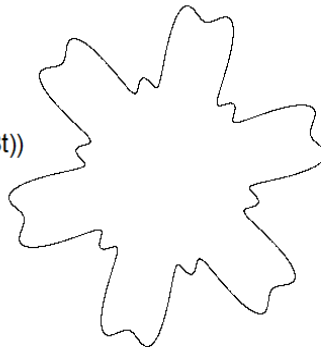
$x = r \cdot \cos(t)$
 $y = r \cdot \sin(t)$
 $t \in [0, 2\pi]$,
 $r = R + \sin(8t)$
 $R = \text{cst}$



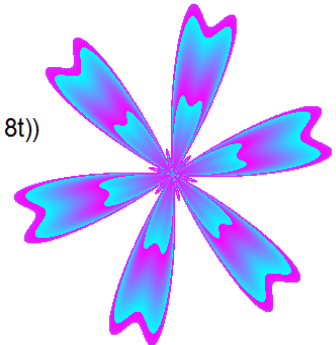
$x = r \cdot \cos(t)$
 $y = r \cdot \sin(t)$
 $t \in [0, 2\pi]$,
 $r = R(1 + \sin(8t))$
 $R \in [0, R_1]$
 $R_1 = \text{cst}$



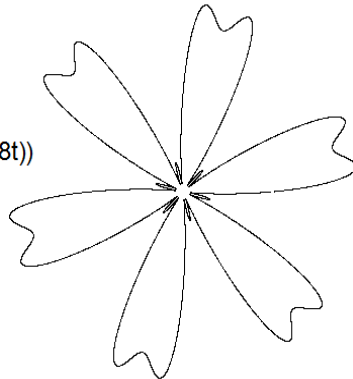
$x = r \cdot \cos(t)$
 $y = r \cdot \sin(t)$
 $t \in [0, 2\pi]$,
 $r = R(1 + 0.3\sin(6t) + 0.1\sin(18t))$
 $R = \text{cst}$



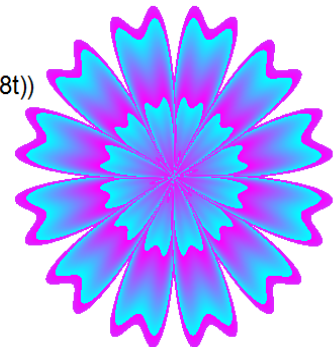
$x = r \cdot \cos(t)$
 $y = r \cdot \sin(t)$
 $t \in [0, 2\pi]$,
 $r = R(1 + \sin(6t) + 0.3\sin(18t))$
 $R \in [0, R_1]$
 $R_1 = \text{cst}$



$x = r \cdot \cos(t)$
 $y = r \cdot \sin(t)$
 $t \in [0, 2\pi]$,
 $r = R(1 + \sin(6t) + 0.3\sin(18t))$
 $R = \text{cst}$



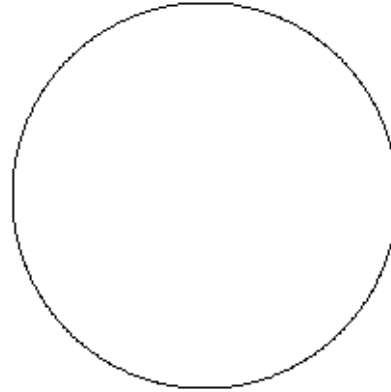
$x = r \cdot \cos(t + 0.52)$
 $y = r \cdot \sin(t + 0.52)$
 $t \in [0, 2\pi]$,
 $r = R(1 + \sin(6t) + 0.3\sin(18t))$
 $R \in [0, R_1]$
 $R_1 = \text{cst}$



```

float x,y,t,r=10,d=10,cx=400,cy=250;
for(t=0;t<=6.28;t+=0.01)
{
  x=r*cos(t);
  y=r*sin(t);
  pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0));
}

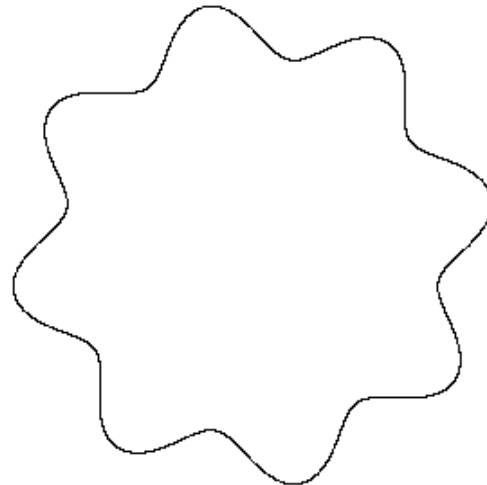
```



```

float x,y,t,r=8,d=15,cx=400,cy=250,r1;
for(t=0;t<=6.28;t+=0.0005)
{
  r1=r+sin(8*t);
  x=r1*cos(t);
  y=r1*sin(t);
  pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0));
}

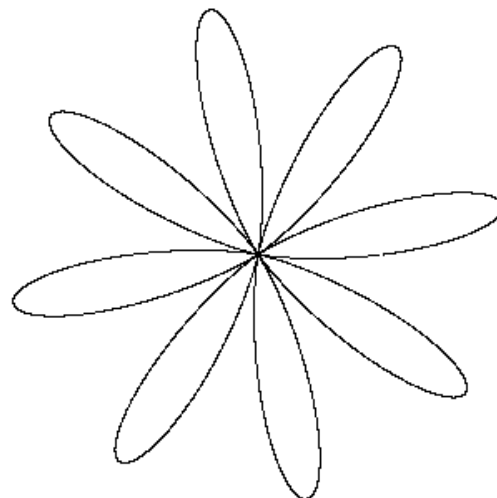
```



```

float x,y,t,r=5,d=15,cx=400,cy=250,r1;
for(t=0;t<=6.28;t+=0.0005)
{
  r1=r*(1+sin(8*t));
  x=r1*cos(t);
  y=r1*sin(t);
  pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0));
}

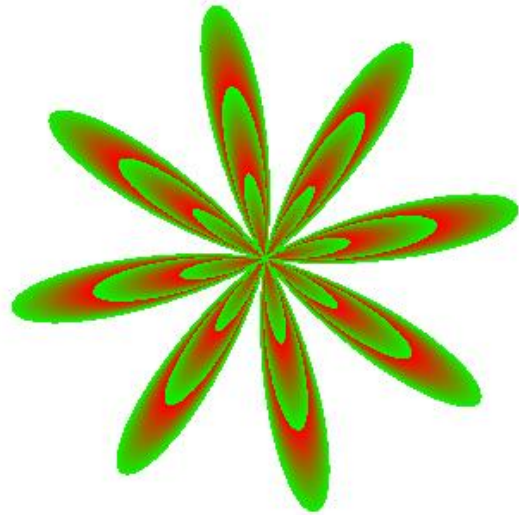
```



```

float x,y,t,r,d=15,cx=400,cy=250,a,r1;
for(r=0;r<=5;r+=0.03)
  for(t=0;t<=6.28;t+=0.0005)
  {
    r1=r*(1+sin(8*t));
    x=r1*cos(t);
    y=r1*sin(t);
    pDC->SetPixel(x*d+cx,-y*d+cy,
      RGB(255-r*150,r*150,0));
  }

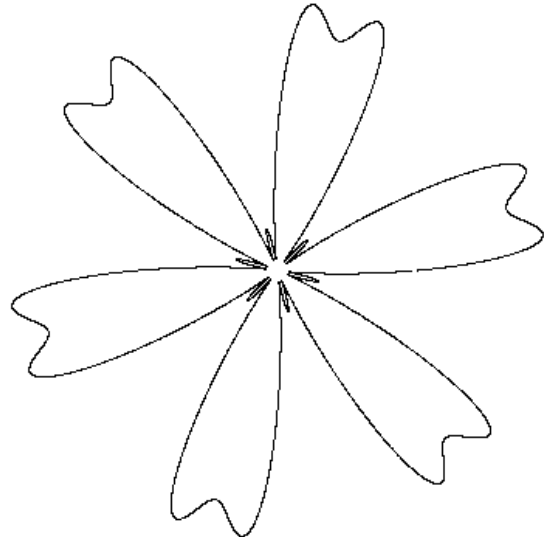
```



```

float x,y,t,r=9,d=10,cx=400,cy=250,r1;
for(t=0;t<=6.28;t+=0.0005)
{
  r1 = r*(1+sin(6*t)+0.3*sin(18*t));
  x=r1*cos(t);
  y=r1*sin(t);
  pDC->SetPixel(x*d+cx,-y*d+cy,RGB(0,0,0));
}

```



```

float x,y,t,r=9,d=15,cx=400,cy=250,a,r1;
for(r=0;r<=5.5;r+=0.03)
  for(t=0;t<=6.28;t+=0.0005)
  {
    r1 = r*(1+sin(6*t)+0.3*sin(18*t));
    x=r1*cos(t);
    y=r1*sin(t);
    pDC->SetPixel(x*d+cx,-y*d+cy,
      RGB(255-r*100,r*100,255));
  }

```

