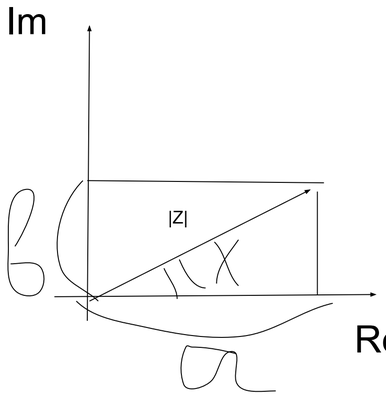

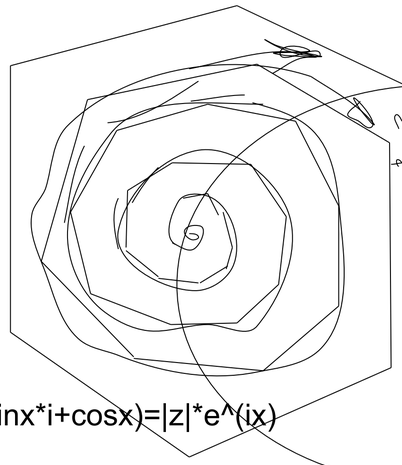

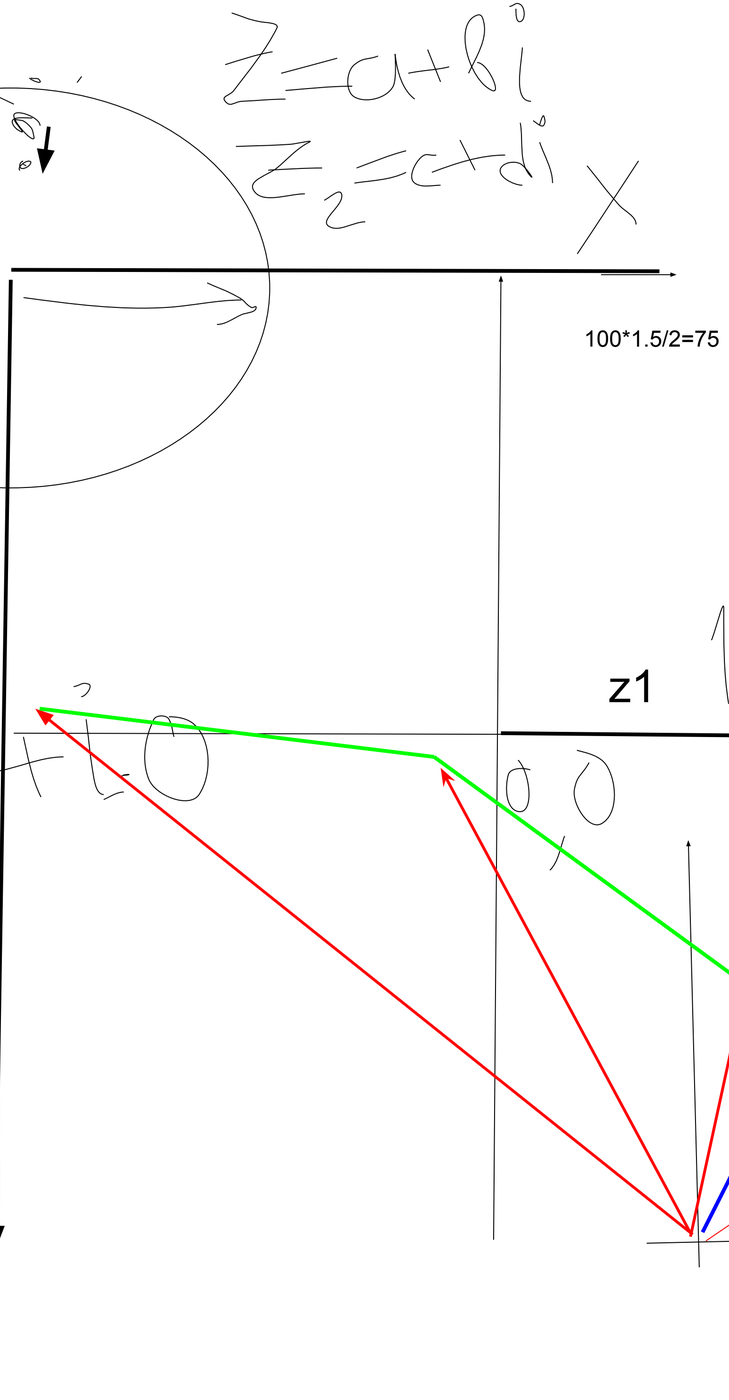


```
void spiral(struct point shade)
{
   //(a+bi)(c+di)=(ac-db)+i(ad+cb)
   double x1=1, y1=0;
   double x2=1.01*cos(M_PI/12);
   double y2=1.01*sin(M_PI/12);
   int i;
   int ots=200;
   double x, y;
   for(i=0;i<1000;i++)
   {
      x=(x1*x2-y1*y2);
      y=(x1*y2+y1*x2);
      pain_stick(round(x1)+ots,round(y1)+ots,round(x)+ots,round(y)+ots,shade);
      printf("x1=%f ,y1=%f ,x=%f ,y=%f\n",x1, y1, x, y);
      x1=x;
      y1=y;
   }
}
```

z=a+bi=cosx*|z|+sinx*|z|*i=|z|(sinx*i+cosx)=|z|*e^(ix)
sinx=b/|z|
cosx=a/|z|
b=sinx*|z|
a=cosx*|z|
z1*z2=|z1|*e^(ix1)*|z2|*e^(ix2)=|z1|*|z2|e^(ix1+ix2)=
=|z1|*|z2|e^(i(x1+x2))=|z1|*|z2|(sin(x1+x2)*i+cos(x1+x2))

АЛГЕБРА КОМПЛЕКСНЫХ ЧИСЕЛ
произведение в тригонометр виде

(a+bi)(**c**+**d**i)=(ac-db)+i(ad+cb)

z2=1.05(i*sinP/12+cosP/12)
y2=1.05*sinP/12
x2=1.05*cosP/12

```
for(i=0;i<24;i++)
{
    //z=z*z1;
    a=ac-db;//координата x
    b=ad+cb;//координата y
}
```