

$$z = (a+bi) = \cos x \cdot |z| + \sin x \cdot |z| \cdot i = |z|(\cos x + \sin x \cdot i)$$

$$\sin x = b/|z| \Rightarrow b = \sin x \cdot |z|$$

$$\cos x = a/|z| \Rightarrow a = \cos x \cdot |z|$$

$$z = a + bi$$

$$z_2 = c + di$$

$$z = |z|(\cos x + \sin x \cdot i) = |z| \cdot e^{i \cdot x}$$

$$z_1 = |z_1|(\cos x_1 + \sin x_1 \cdot i) = |z_1| \cdot e^{i \cdot x_1}$$

$$z_2 = |z_2|(\cos x_2 + \sin x_2 \cdot i) = |z_2| \cdot e^{i \cdot x_2}$$

$$z_1 \cdot z_2 = |z_1|(\cos x_1 + \sin x_1 \cdot i) \cdot |z_2|(\cos x_2 + \sin x_2 \cdot i)$$

$$= |z_1| |z_2| (\cos x_1 \cos x_2 + \cos x_1 \sin x_2 \cdot i + \sin x_1 \cdot i \cos x_2 - \sin x_1 \sin x_2) = |z_1| |z_2| ((\cos x_1 \cos x_2 - \sin x_1 \sin x_2) + i(\cos x_1 \sin x_2 + \sin x_1 \cos x_2))$$

$$z_1 \cdot z_2 = |z_1| \cdot e^{i \cdot x_1} \cdot |z_2| \cdot e^{i \cdot x_2} = |z_1| |z_2| \cdot e^{i(x_1 + x_2)} = |z_1| |z_2| (\cos(x_1 + x_2) + \sin(x_1 + x_2) \cdot i)$$

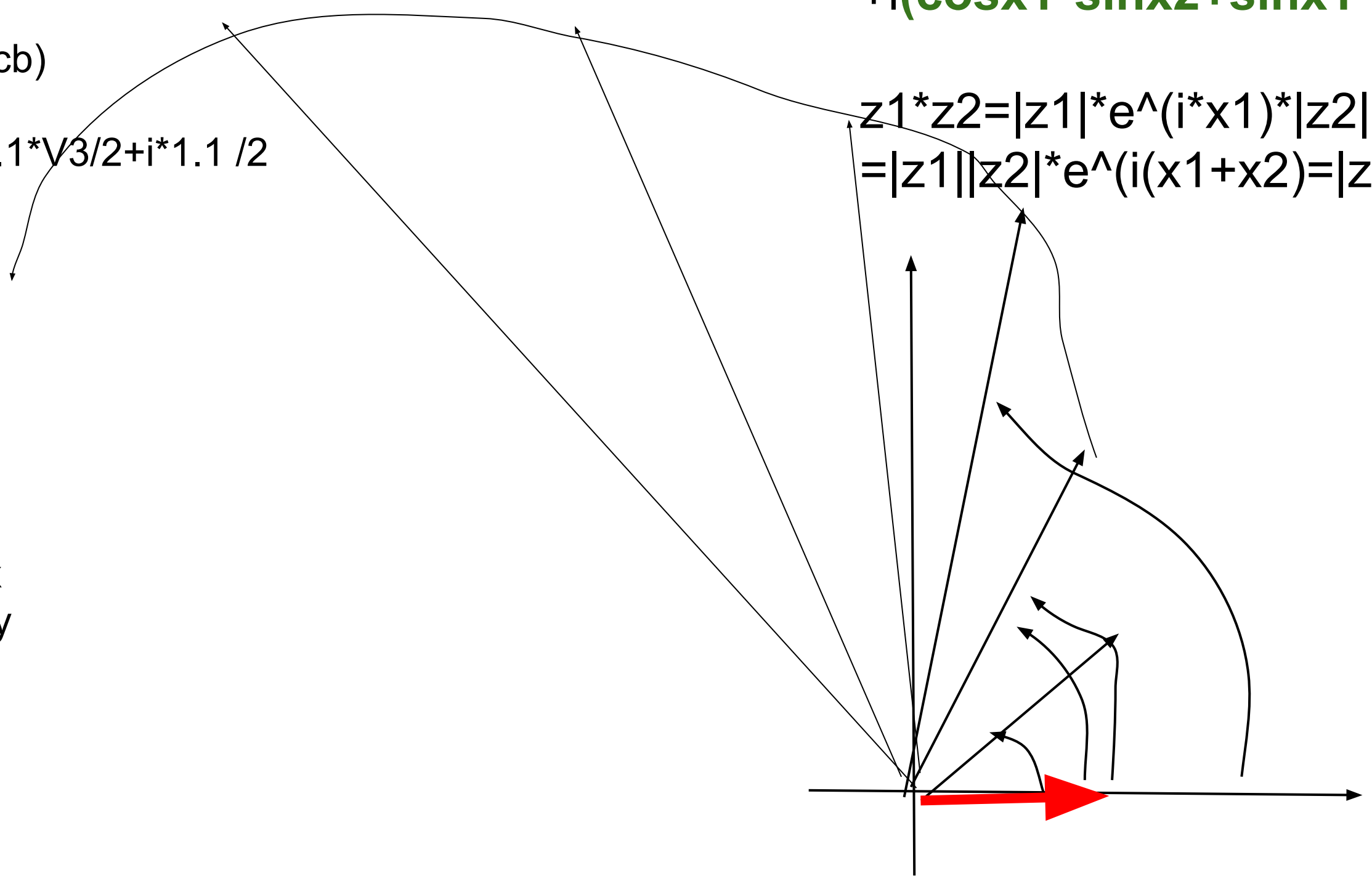
АЛГЕБРА КОМПЛЕКСНЫХ ЧИСЕЛ
произведение в тригонометр виде

$$(a+bi)(c+di) = (ac-db) + i(ad+cb)$$

$$z_1 = 1.1(\sin P/6 + i \cdot \cos P/6) = 1.1 \cdot \sqrt{3}/2 + i \cdot 1.1/2$$

z=1
f(z)
{z*z1}
f(f)

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



1;0

```
void spiral(struct point shade)
{
  //(a+bi)(c+di)=(ac-db)+i(ad+cb)
  //(x1+y1)(x2+y2)=(x1x2-y1y2)+(x1y2+x2y1)
  int x,y,i;
  y=HEIGHT/2;
  x=WIDTH/2;
  double x1,y1;
  x1=1.01*cos(M_PI/12);
  y1=1.01*sin(M_PI/12);
  double x2,y2;
  double x0,y0;
  x2=1;
  y2=0;
  for(i=0;i<500;i++)
  {
    x0=x1*x2-y1*y2;
    y0=x1*y2+x2*y1;
    vector(round(x2)+x,round(y2)+y,round(x0)+x,round(y0)+y,shade);
    x2=x0;
    y2=y0;
  }
}
```