# CSE2006 LAB 6

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## Code:

### 1. SCALING-ROTATION

```
void setup()
{
size(1000,1000);
background(255);
}
void draw()
{
 int sx=5,sy=5;
 float angle=45;
 scaling_rotation(sx,sy,angle);
}
void scaling_rotation(int sx,int sy,float angle)
{
 int x1=10,x2=100,y1=70,y2=70;
 fill(93,50,10);
text("original",50,90);
line(x1,y1,x2,y2);
int x3=(x1*sx);
int y3=(y1*sy);
int x5=(x2*sx);
int y5=(y2*sy);
float ang=(angle*3.14)/180;
float x4=(((x5-x3)*cos(angle))-((y5-y3)+sin(angle)));
float y4=(((x5-x3)*sin(angle))-((y5-y3)+cos(angle)));
fill(93,50,10);
text("After scaling and rotating to 45",250,400);
line(x5,y5,x4,y4);
}
```

**OUTPUT:**

_____
**original**


_____
**After scaling and rotating to 45**
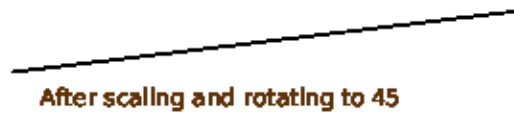

## 2. SCALING-TRANSLATION:

```
void setup()
{
size(1000,1000);
background(255);

}
void draw()
{

 int sx=5,sy=5;
 int tx=25;
 int ty=15;
 scaling_translation(sx,sy,tx,ty);
}


void scaling_translation(int sx,int sy,int tx,int ty)
{
 int x1=10,x2=100,y1=70,y2=70;
 fill(93,50,10);
text("original",50,90);
line(x1,y1,x2,y2);
int x3=(x1*sx);
int y3=(y1*sy);
```

```
int x5=(x2*sx);
int y5=(y1*sy);
x3=x3+tx;
x5=x5+tx;
y3=y3+ty;
y5=y5+ty;
fill(120,200,10);
text("after scaling and translation",150,380);
line(x3,y3,x5,y5);
}
```

**OUTPUT:**

_____
        original

_____
            after scaling and translation

## 3.   TRANSLATION-ROTATION:

```
void setup()
{
size(1000,1000);
background(255);

}
void draw()
{

 int tx=35,ty=100;
 float angle=45;
 scaling_rotation(tx,ty,angle);
```
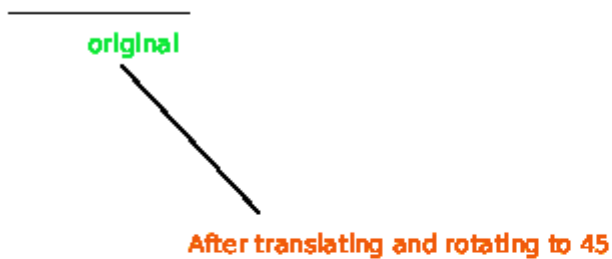
```
}

void scaling_rotation(int tx,int ty,float angle)
{
 int x1=10,x2=100,y1=70,y2=70;
 fill(13,230,56);
text("original",50,90);
line(x1,y1,x2,y2);
int x3=x1+tx;
int x5=x2+tx;
int y3=y1+ty;
int y5=y2+ty;
float ang=(angle*3.14)/180;
float x4=(((x5-x3)*cos(angle))-((y5-y3)+sin(angle)));
float y4=(((x5-x3)*sin(angle))-((y5-y3)+cos(angle)));
fill(240,90,10);
text("After translating and rotating to 45",100,190);
line(x5,y5,x4+20,y4+20);
}
```

**OUTPUT:**



## 4.TRANSLATION-SCALING-ROTATION

```
void setup()
{
size(1000,1000);
```

```
background(255);

}
void draw()
{

 int sx=3,sy=3;
 int tx=50,ty=60;
 float angle=45;
trans_scaling_rotation(tx,ty,sx,sy,angle);

}


void trans_scaling_rotation(int tx,int ty,int sx,int sy,float angle)
{
 int x1=10,x2=100,y1=70,y2=70;
 fill(93,50,10);
text("original",50,90);
line(x1,y1,x2,y2);
int x3=x1+tx;
int x5=x2+tx;
int y3=y1+ty;
int y5=y2+ty;

x3=(x3*sx);
y3=(y3*sy);
x5=(x5*sx);
y5=(y5*sy);

float ang=(angle*3.14)/180;
float x4=(((x5-x3)*cos(angle))-((y5-y3)+sin(angle)));
float y4=(((x5-x3)*sin(angle))-((y5-y3)+cos(angle)));
fill(233,100,10);
text("After translating,scaling and rotating to 45",250,420);
line(x5,y5,x4,y4);
}
```
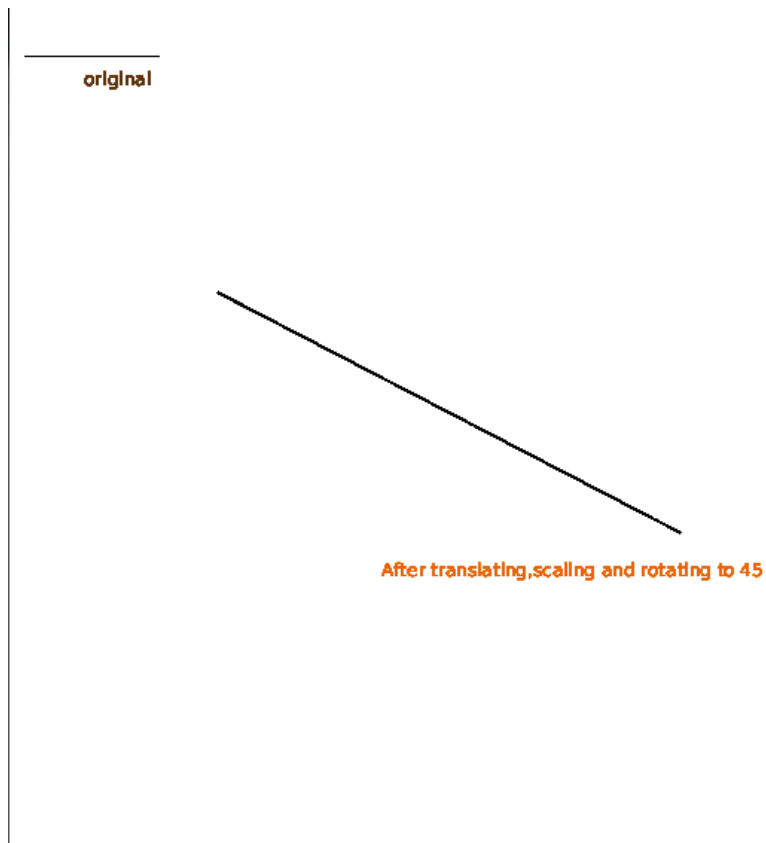
**OUTPUT:**

original

After translating,scaling and rotating to 45

## 5. SCALING-ROTATION-TRANSLATING:

```
void setup()
{
size(1000,1000);
background(255);


}
void draw()
{

 int sx=3,sy=3;
 int tx=150,ty=120;
 float angle=45;
scaling_rotation_trans(tx,ty,sx,sy,angle);

}
void scaling_rotation_trans(int tx,int ty,int sx,int sy,float angle)
{
 int x1=10,x2=100,y1=70,y2=70;
 fill(93,50,10);
text("original",50,90);
line(x1,y1,x2,y2);
int x3=(x1*sx);
int x5=(x2*sx);
int y3=(y1*sy);
```

```
int y5=(y2*sy);
float ang=(angle*3.14)/180;
float x4=(((x5-x3)*cos(angle))-((y5-y3)+sin(angle)));
float y4=(((x5-x3)*sin(angle))-((y5-y3)+cos(angle)));
x5=x5+tx;
x4=x4+tx;
y5=y5+ty;
y4=y4+tx;
fill(233,100,10);
text("After translating,scaling and rotating to 45",250,420);
line(x5,y5,x4,y4);
}
```

**OUTPUT:**

original

After translating,scaling and rotating to 45

## 6.ROTATION-TRANSLATION-SCALING:

```
void setup()
{
size(1000,1000);
background(255);

}
void draw()
{
```

```
  float sx=3,sy=3;
 float tx=50,ty=70;
 float angle=45;
rotation_trans_scaling(tx,ty,sx,sy,angle);
 }

void rotation_trans_scaling(float tx,float ty,float sx,float sy,float angle)
{
 float x1=10,x2=100,y1=70,y2=70;
 fill(93,50,10);
text("original",50,90);
line(x1,y1,x2,y2);
float ang=(angle*3.14)/180;
float x4=(((x2-x1)*cos(angle))-((y2-y1)+sin(angle)));
float y4=(((x2-x1)*sin(angle))-((y2-y1)+cos(angle)));

float x3=(x2+tx);
float x5=(x4+tx);
float y3=(y2+ty);
float y5=(y4+ty);

x3=x3*sx;
x5=x5*sx;
y3=y3*sy;
y5=y5*sy;
fill(233,100,10);
text("After rotating to 45,translating and scaling",250,460);
line(x3,y3,x5,y5);
}
```

**OUTPUT:**

_____

original

_____

After rotating to 45,translating and scaling