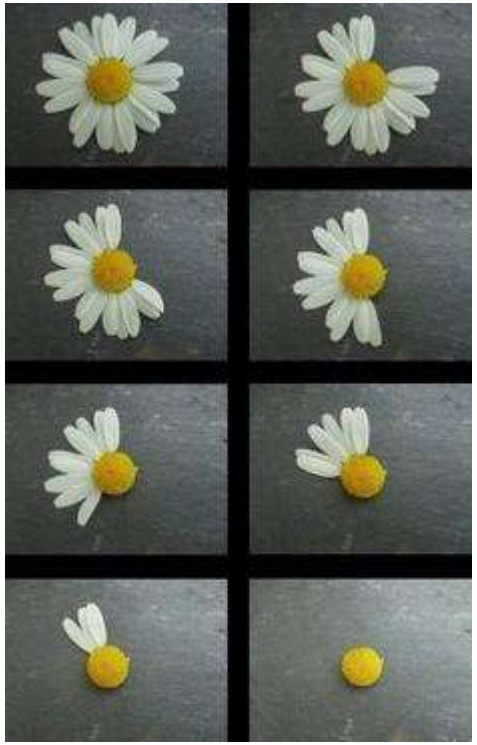
Jogo da Flor
Applet

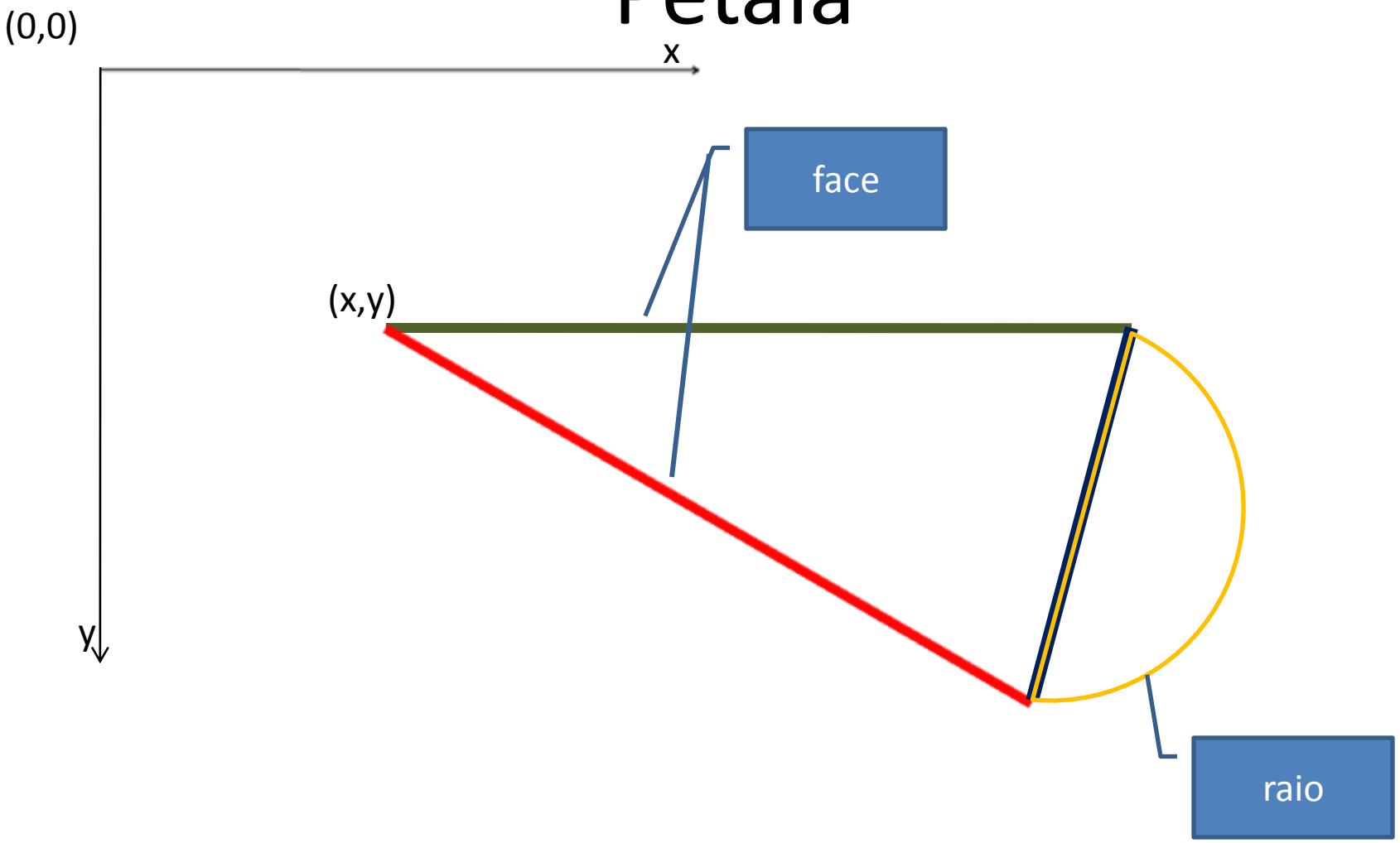
Vitor Vaz da Silva

Pétala

- Desenhar um pétala com um triângulo e um semi-círculo

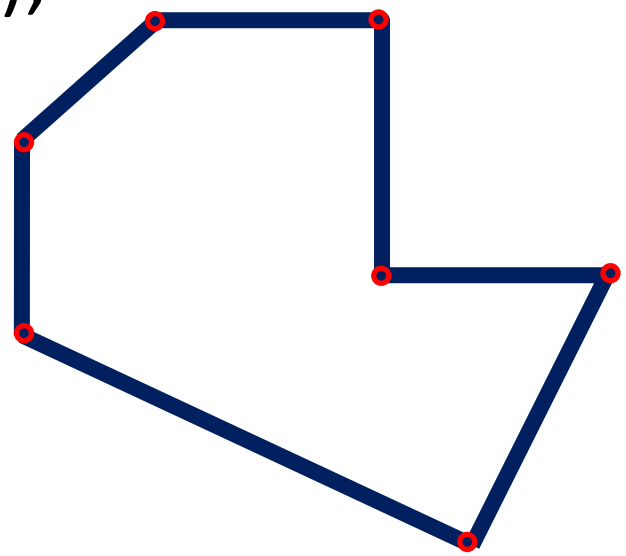


Pétala



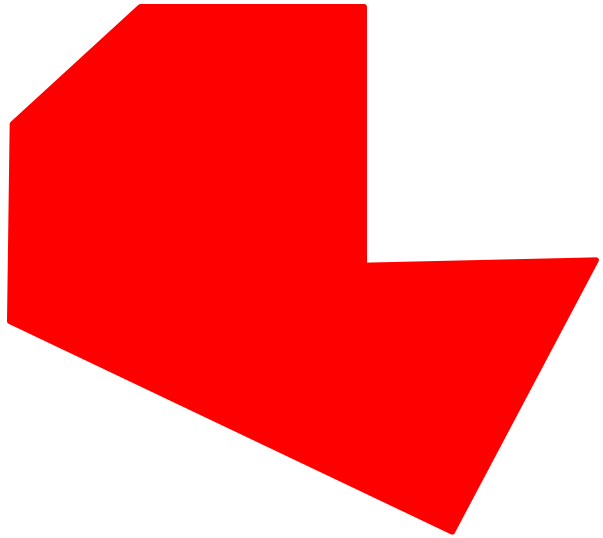
Poligno

```
Polygon figura= new Polygon();
figura.addPoint(x1, y1);
figura.addPoint(x2, y2);
…
figura.addPoint(x7, y7);
```

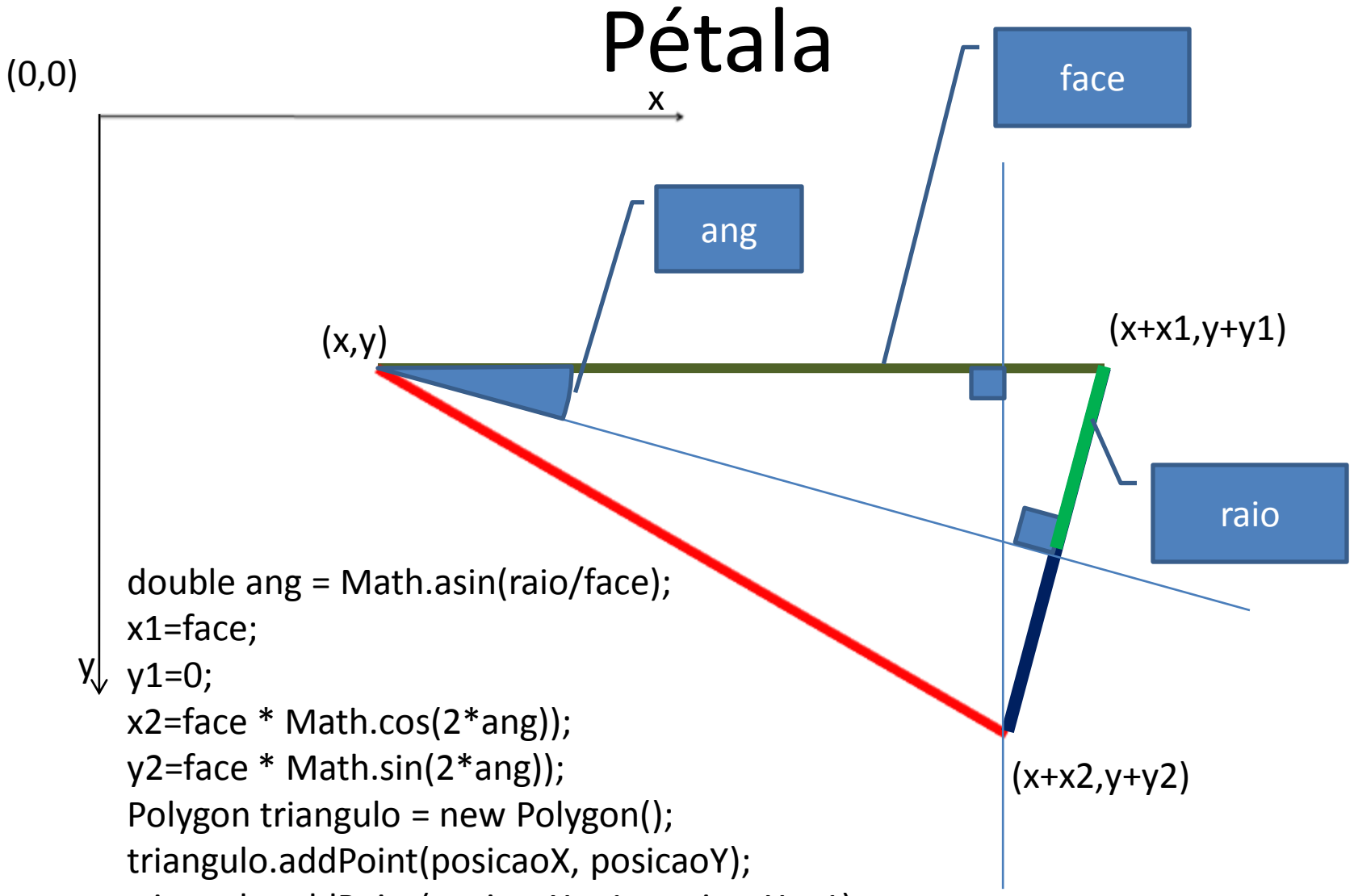


Poligno

```
g.setColor(Color.red);
g.fillPolygon(figura);
```

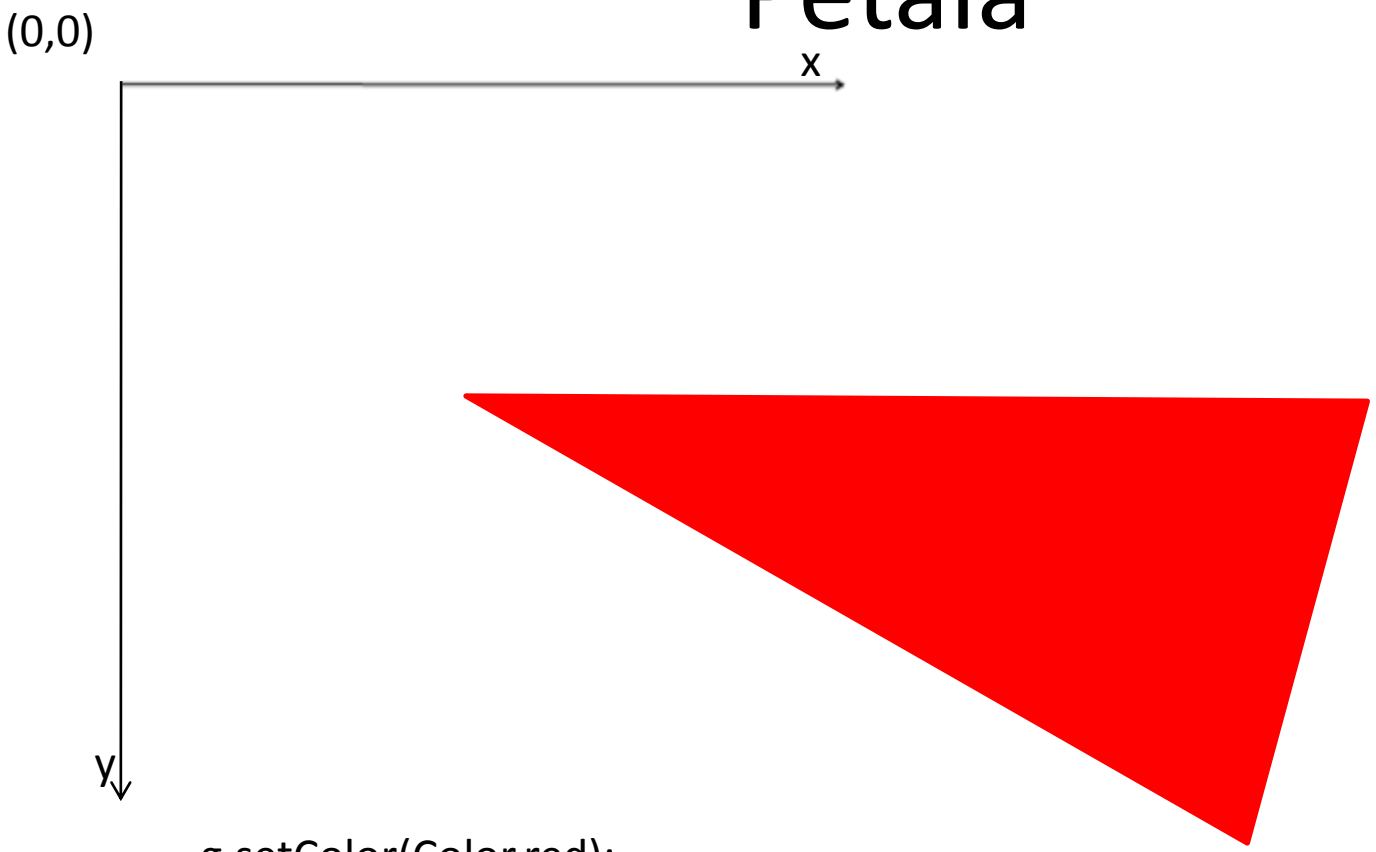


Pétala




```
double ang = Math.asin(raio/face);
x1=face;
y1=0;
x2=face * Math.cos(2*ang));
y2=face * Math.sin(2*ang));
Polygon triangulo = new Polygon();
triangulo.addPoint(posicaoX, posicaoY);
triangulo.addPoint(posicaoX+x1, posicaoY+y1);
triangulo.addPoint(posicaoX+x2, posicaoY+y2);
```

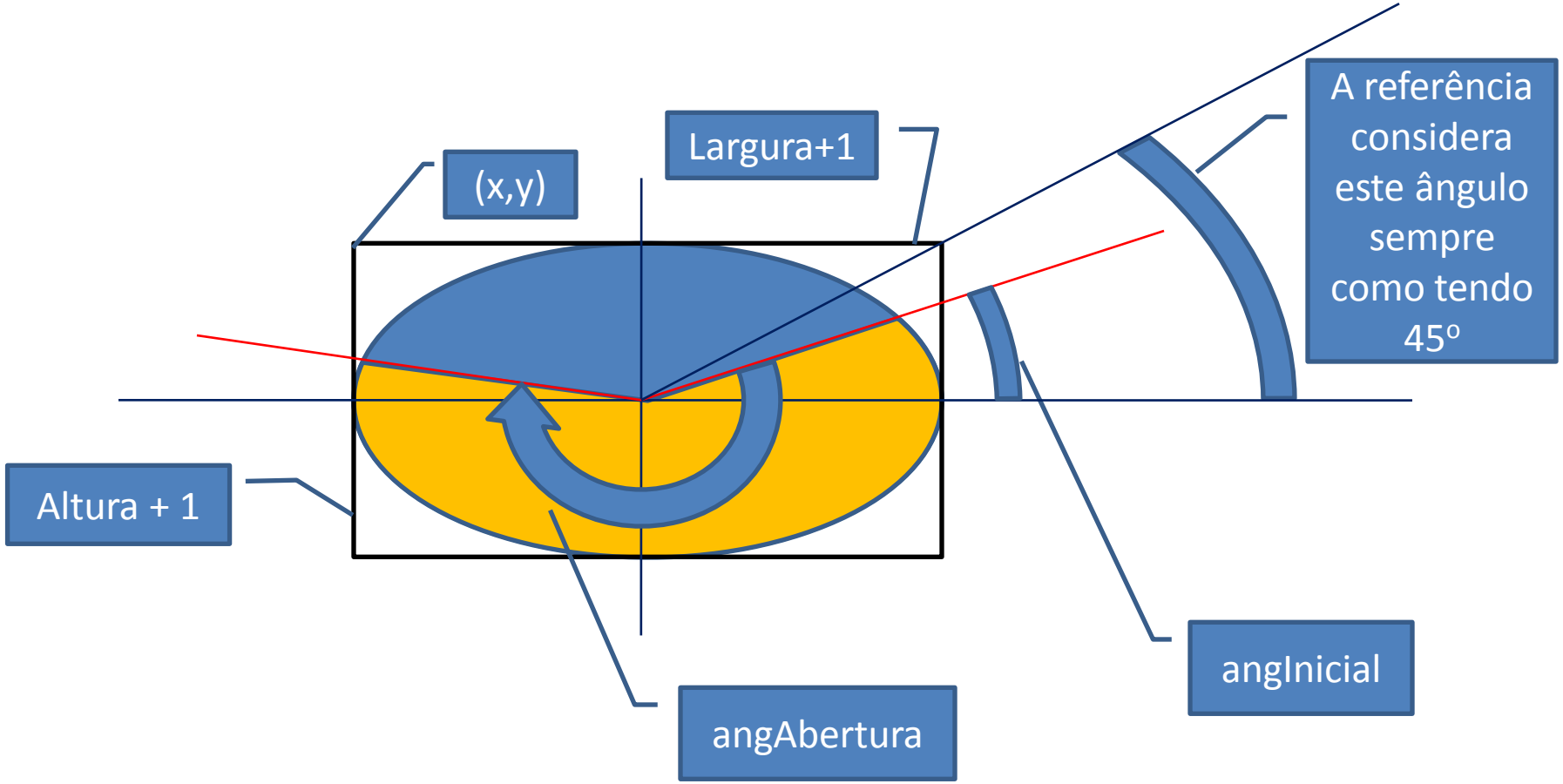
Pétala




```
g.setColor(Color.red);
g.fillPolygon(triangulo);
```

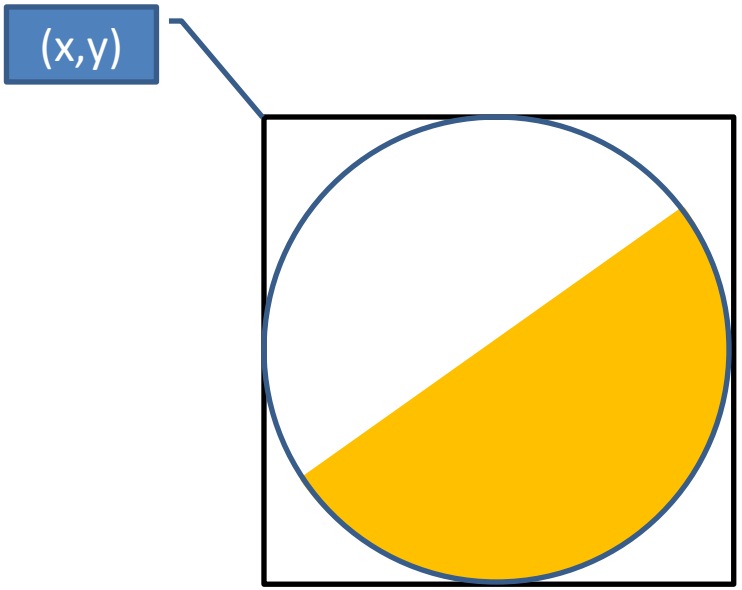
Arc

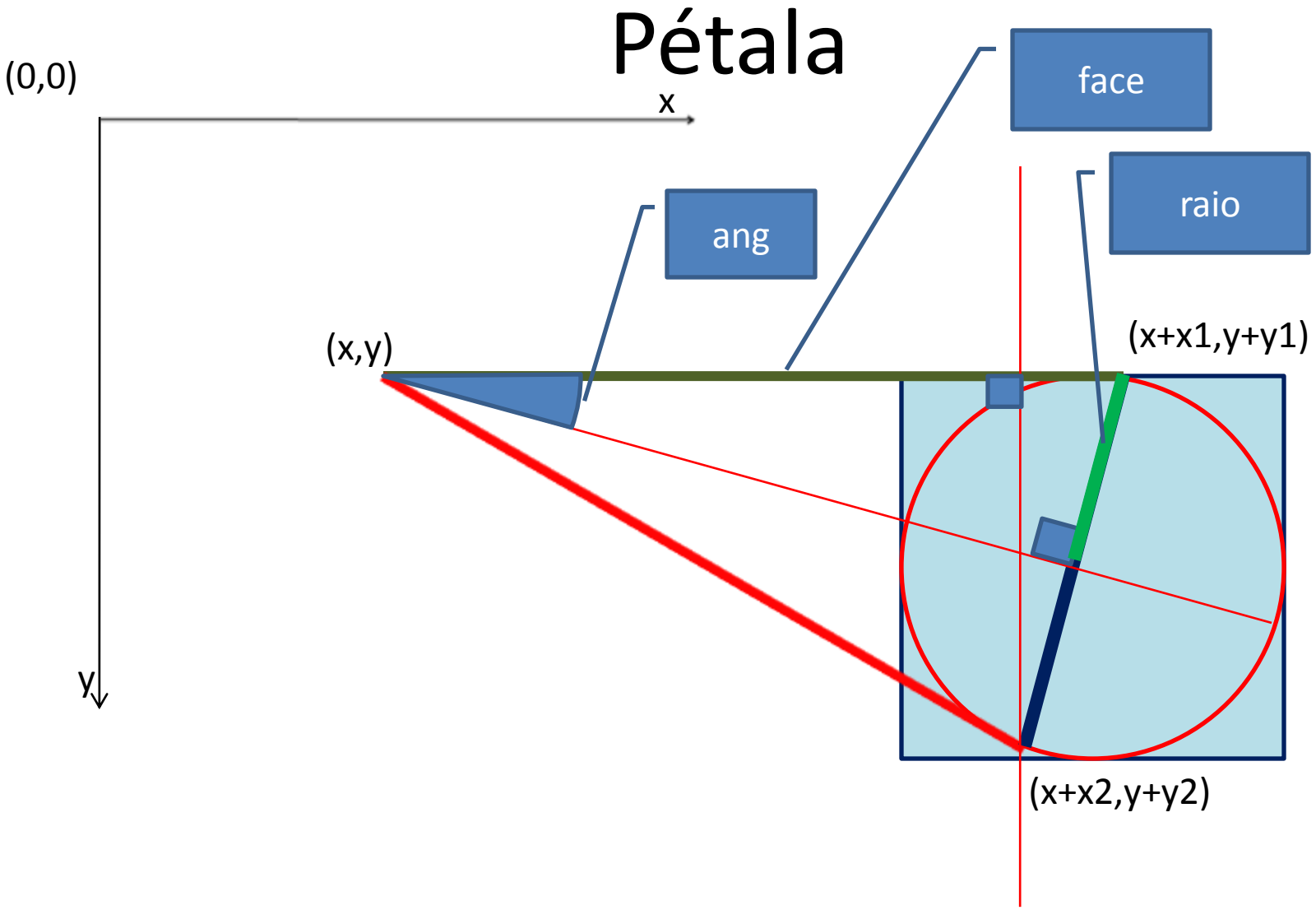
Arc(x, y, largura, altura, angInicial, angAbertura)

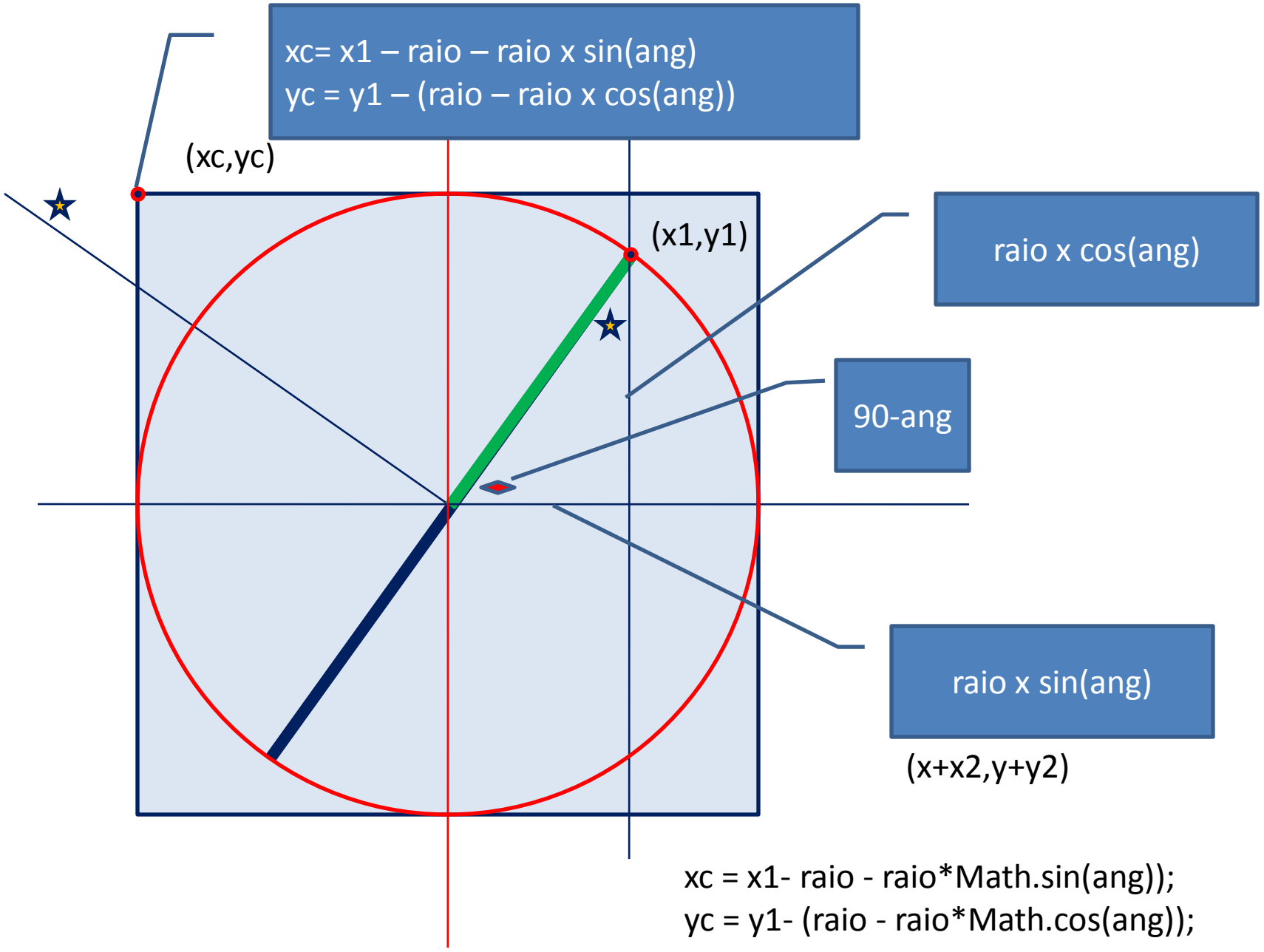


Arc

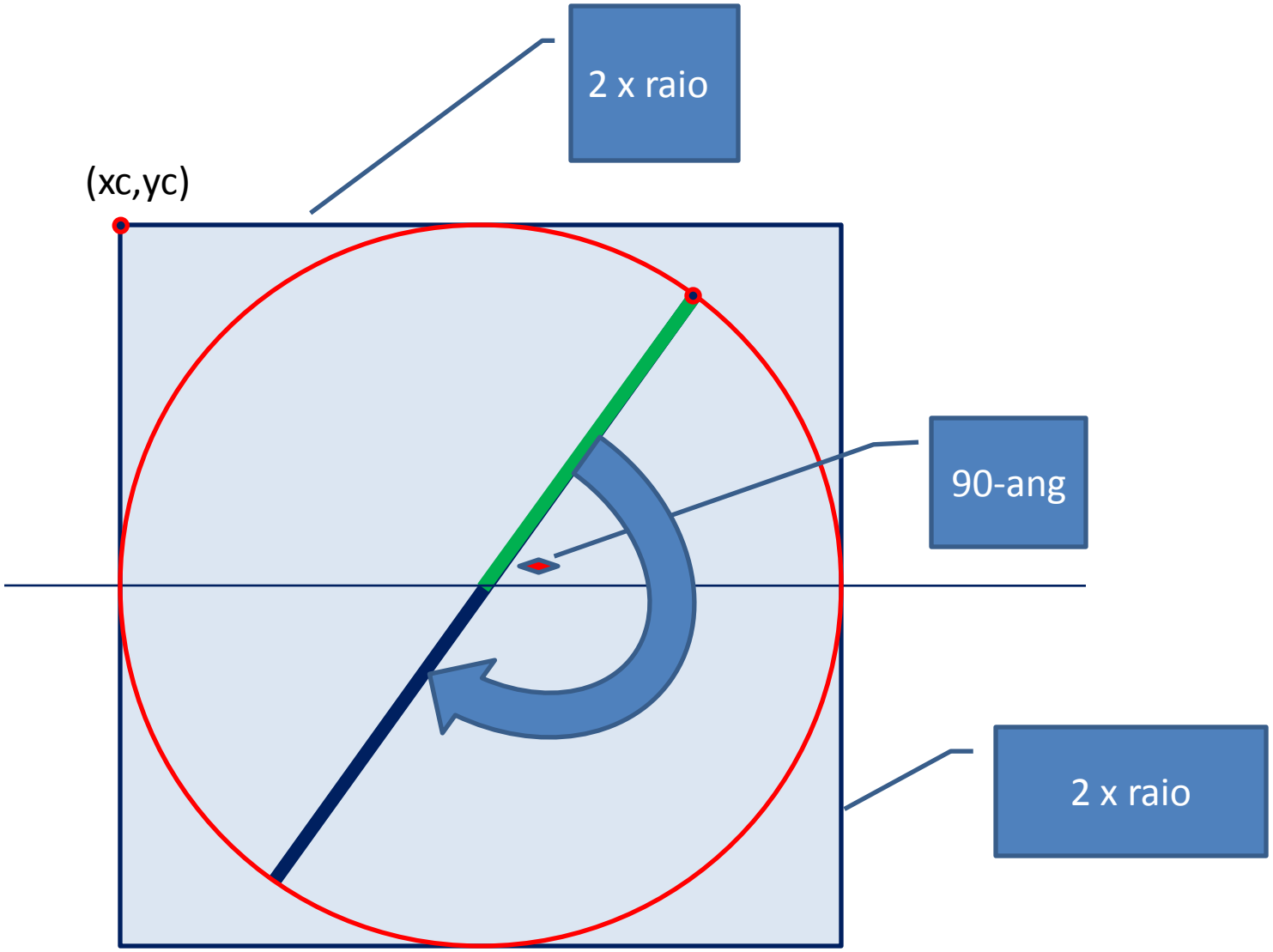
- g.setColor(Color.yellow);
- g.fillArc(x, y, dim-1, dim-1, 40, -180);




Pétala
(0,0)
x
y
face
ang
raio
(x,y)
(x+x1,y+y1)
(x+x2,y+y2)



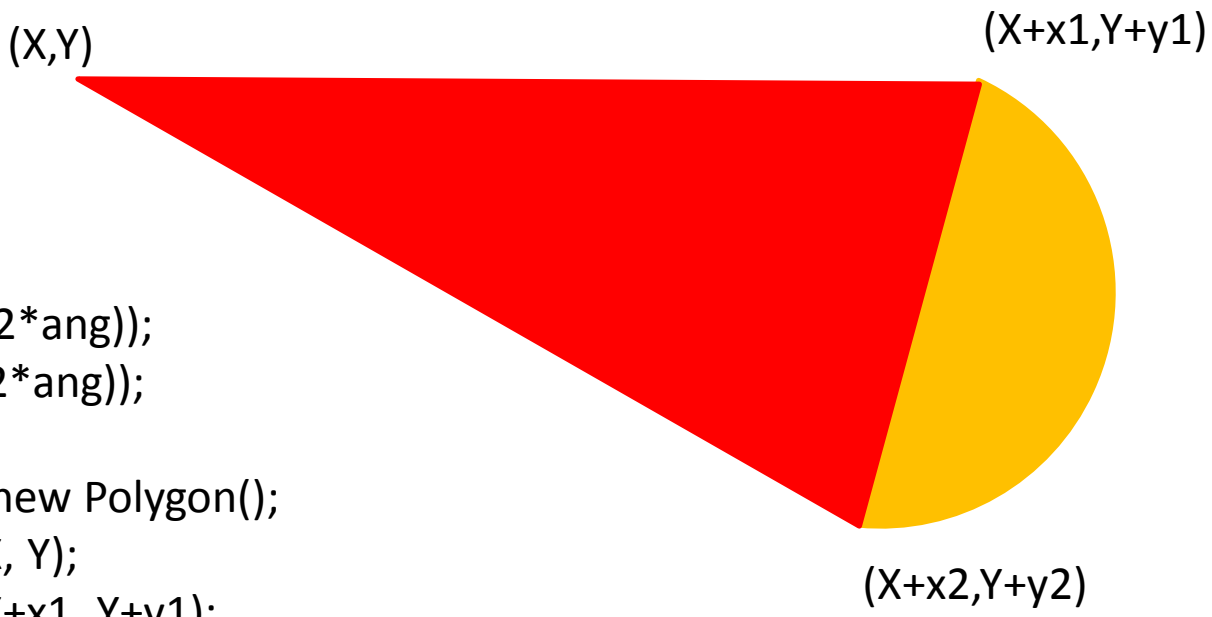
xc = x1- raio - raio*Math.sin(ang));
yc = y1- (raio - raio*Math.cos(ang));



g.fillArc(xc, yc, 2*raio-1, 2*raio-1, 90-ang, -180);

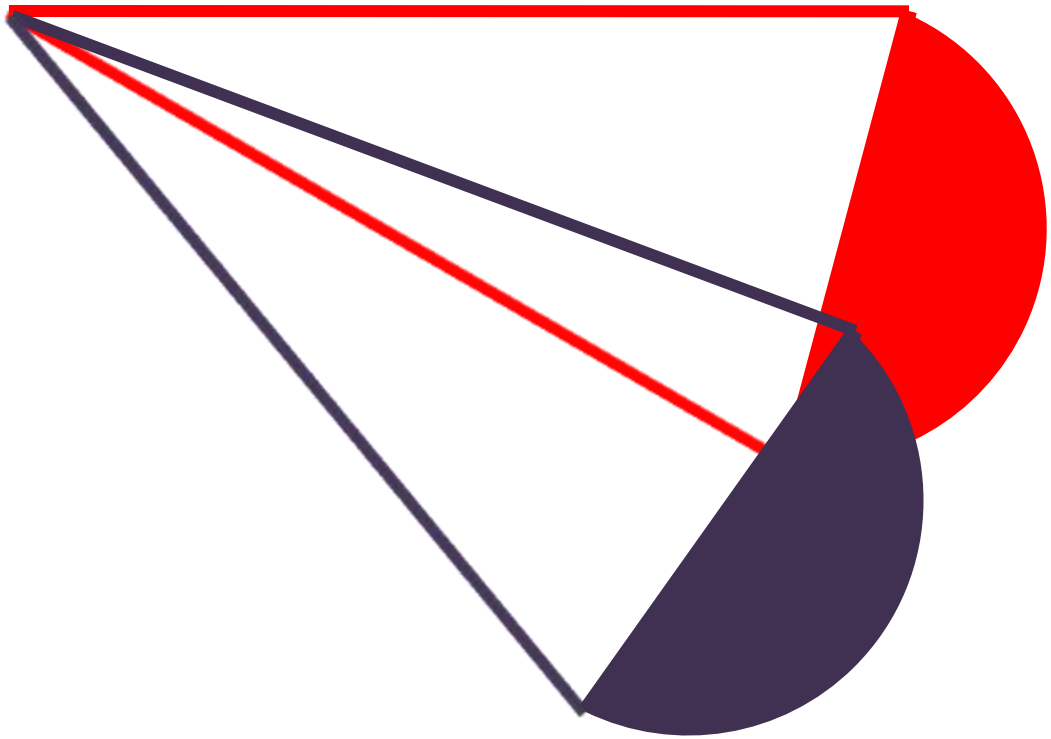
Pétala

```
double ang = Math.asin(raio/face);

xc = x1- raio - raio*Math.sin(ang));
yc = y1- raio +(raio*Math.cos(ang));
g.setColor(Color.yellow);
g.fillArc(X+xc, Y+yc, 2*raio-1, 2*raio-1, 90-ang, -180);
```

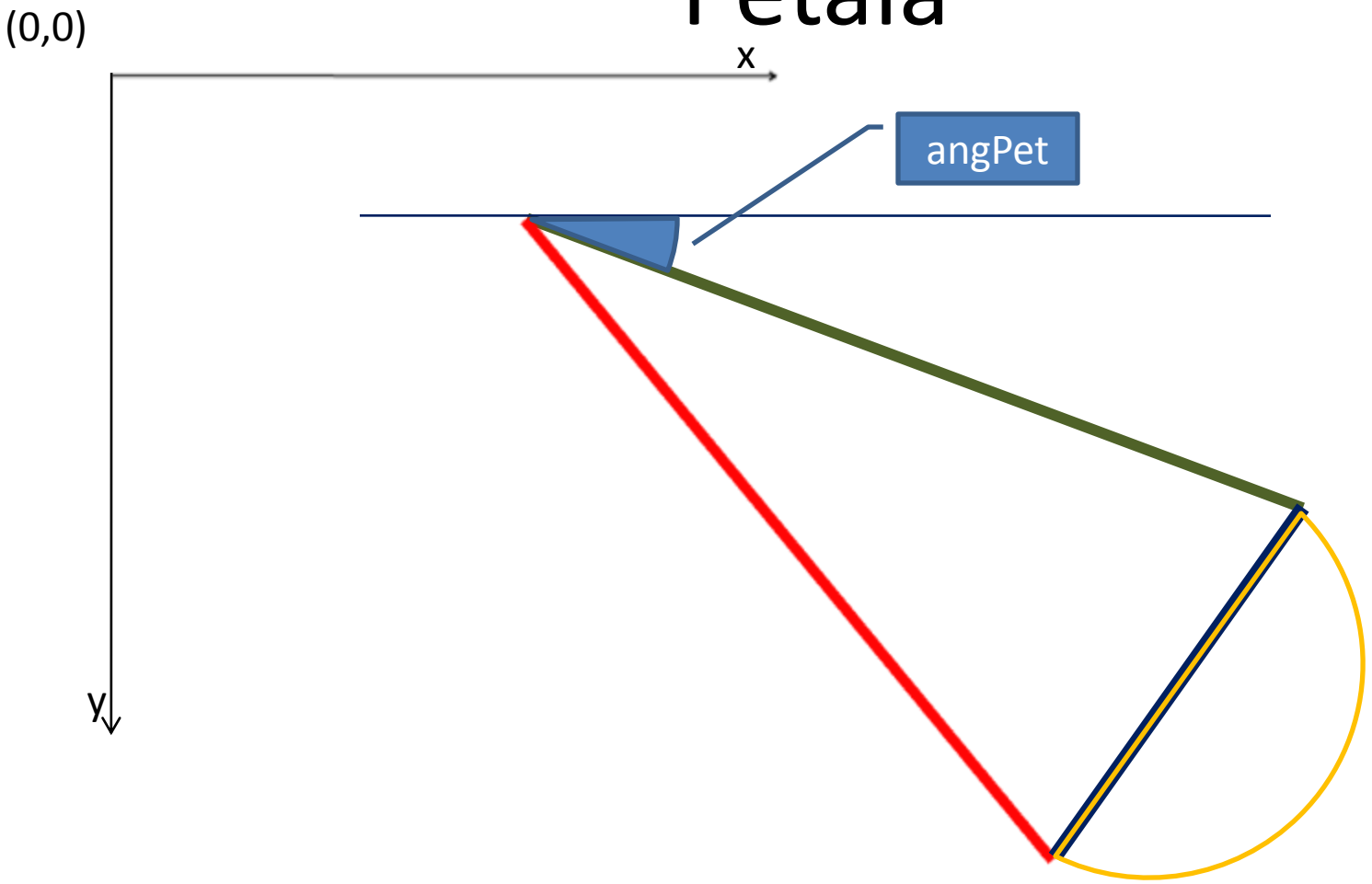



```
x1=face;
y1=0;
x2=face * Math.cos(2*ang));
y2=face * Math.sin(2*ang));

Polygon triangulo = new Polygon();
triangulo.addPoint(X, Y);
triangulo.addPoint(X+x1, Y+y1);
triangulo.addPoint(X+x2, Y+y2);

g.setColor(Color.red);
g.fillPolygon(triangulo);
```

- Alterar o ângulo inicial da pétala

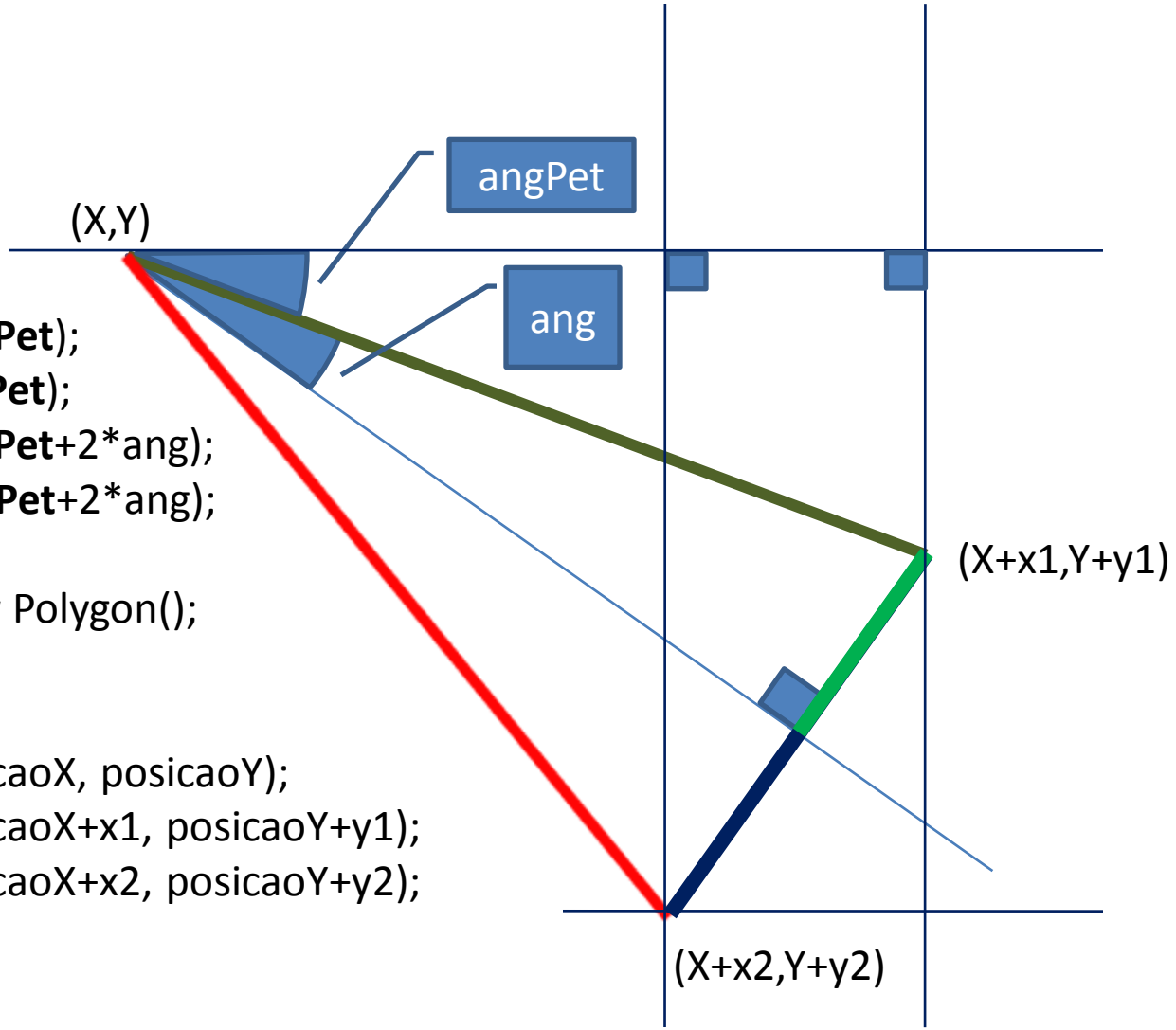


Pétala

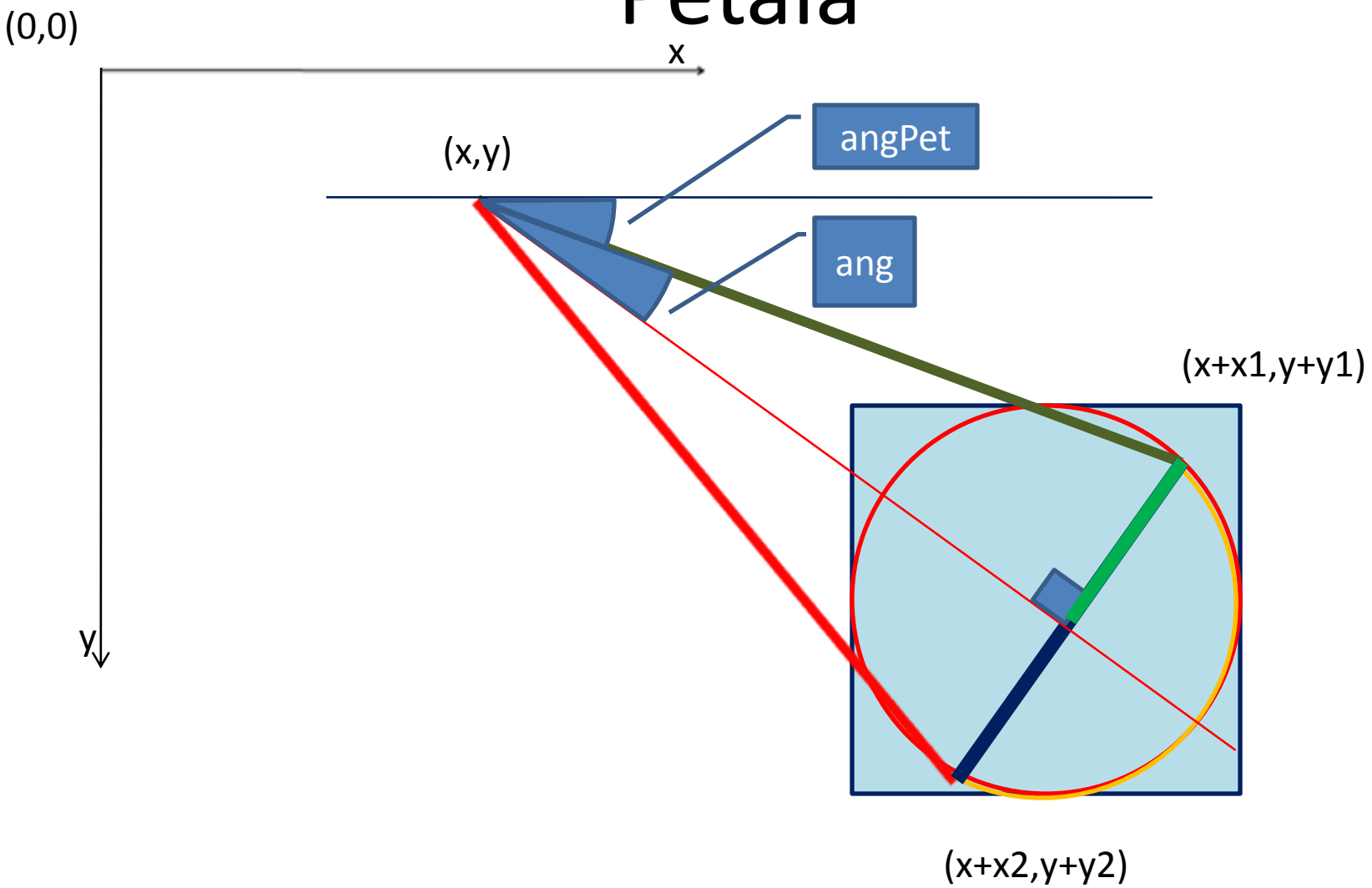


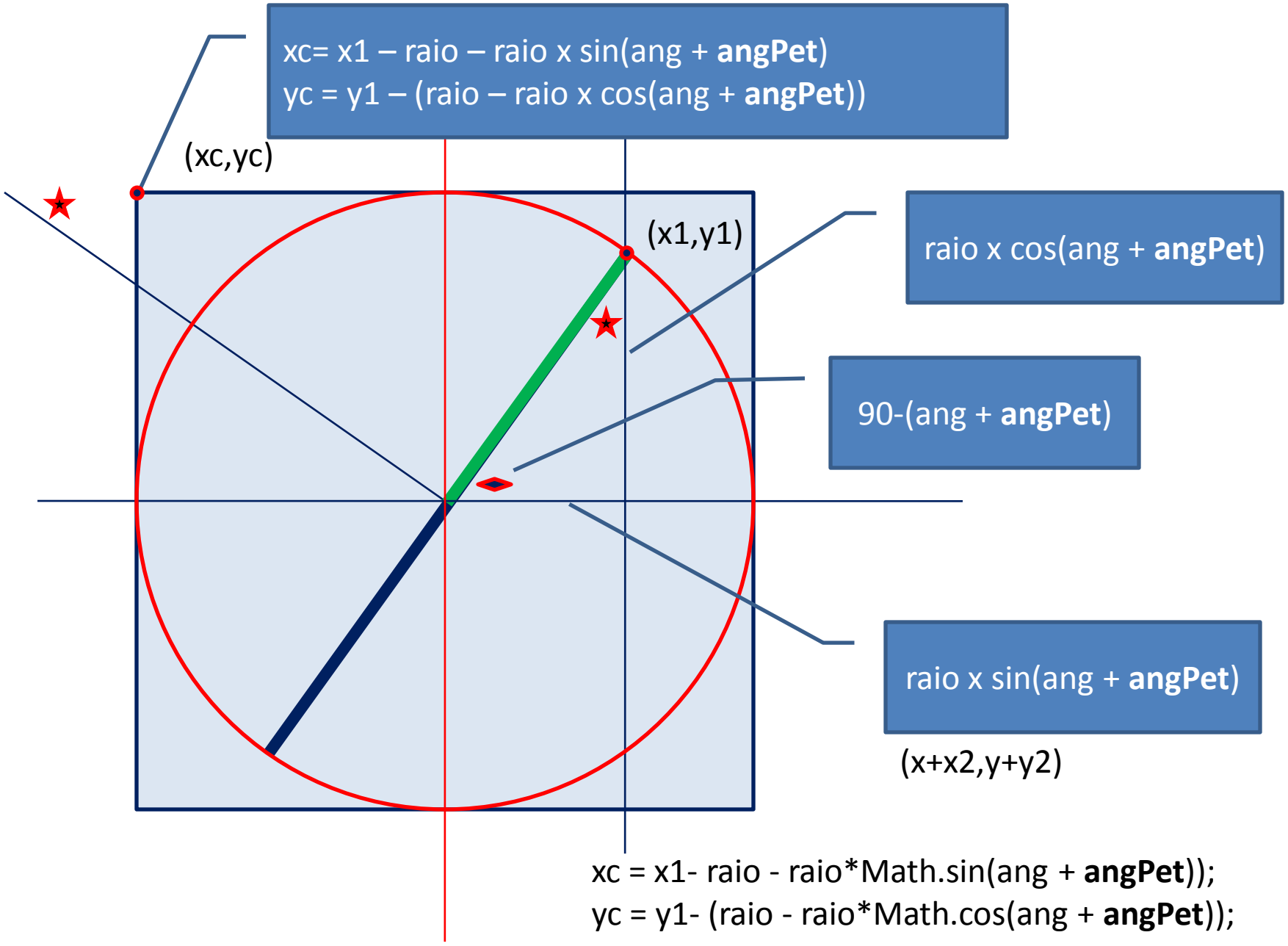
Pétala

```
ang = Math.asin(raio/face);

    x1=face x Math.cos(angPet);
    y1=face x Math.sin(angPet);
    x2=face x Math.cos(angPet+2*ang);
    y2=face  x Math.sin(angPet+2*ang);

    Polygon triangulo = new Polygon();
    g.setColor(Color.red);

    triangulo.addPoint(posicaoX, posicaoY);
    triangulo.addPoint(posicaoX+x1, posicaoY+y1);
    triangulo.addPoint(posicaoX+x2, posicaoY+y2);

    g.fillPolygon(triangulo);
```



Pétala

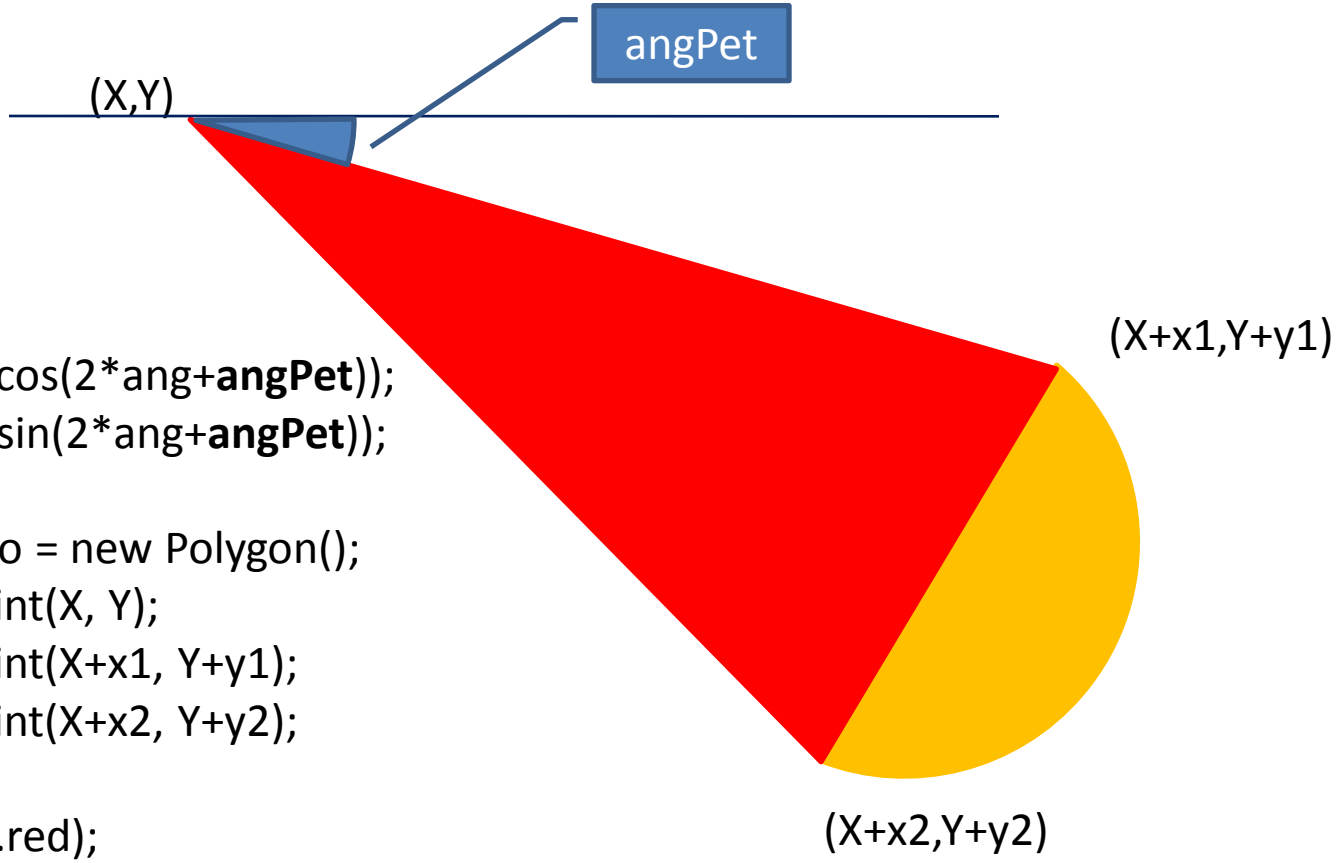





```
xc = x1- raio - raio*Math.sin(ang + angPet));
yc = y1- (raio - raio*Math.cos(ang + angPet));
```

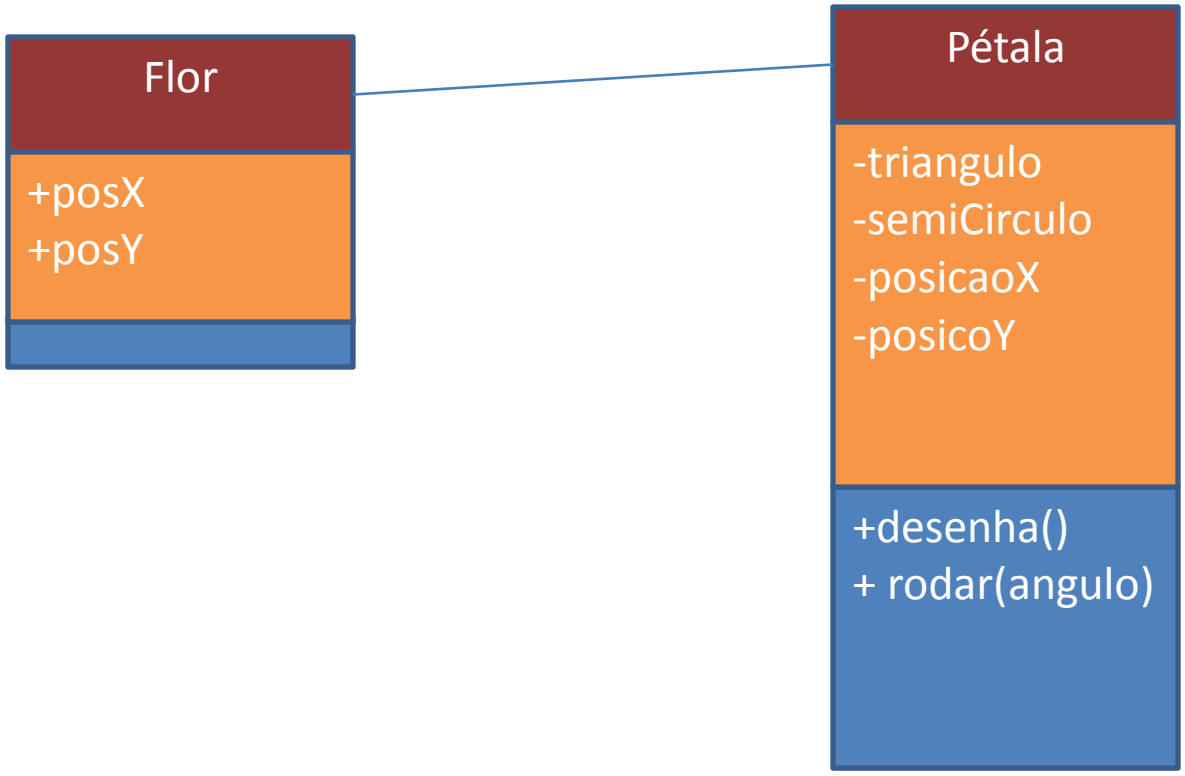
Pétala

```
double ang = Math.asin(raio/face);

xc = x1- raio - raio*Math.sin(ang+angPet));
yc = y1- raio +(raio*Math.cos(ang+angPet));
g.setColor(Color.yellow);
g.fillArc(X+xc, Y+yc, 2*raio-1, 2*raio-1, 90-ang, -180);
```

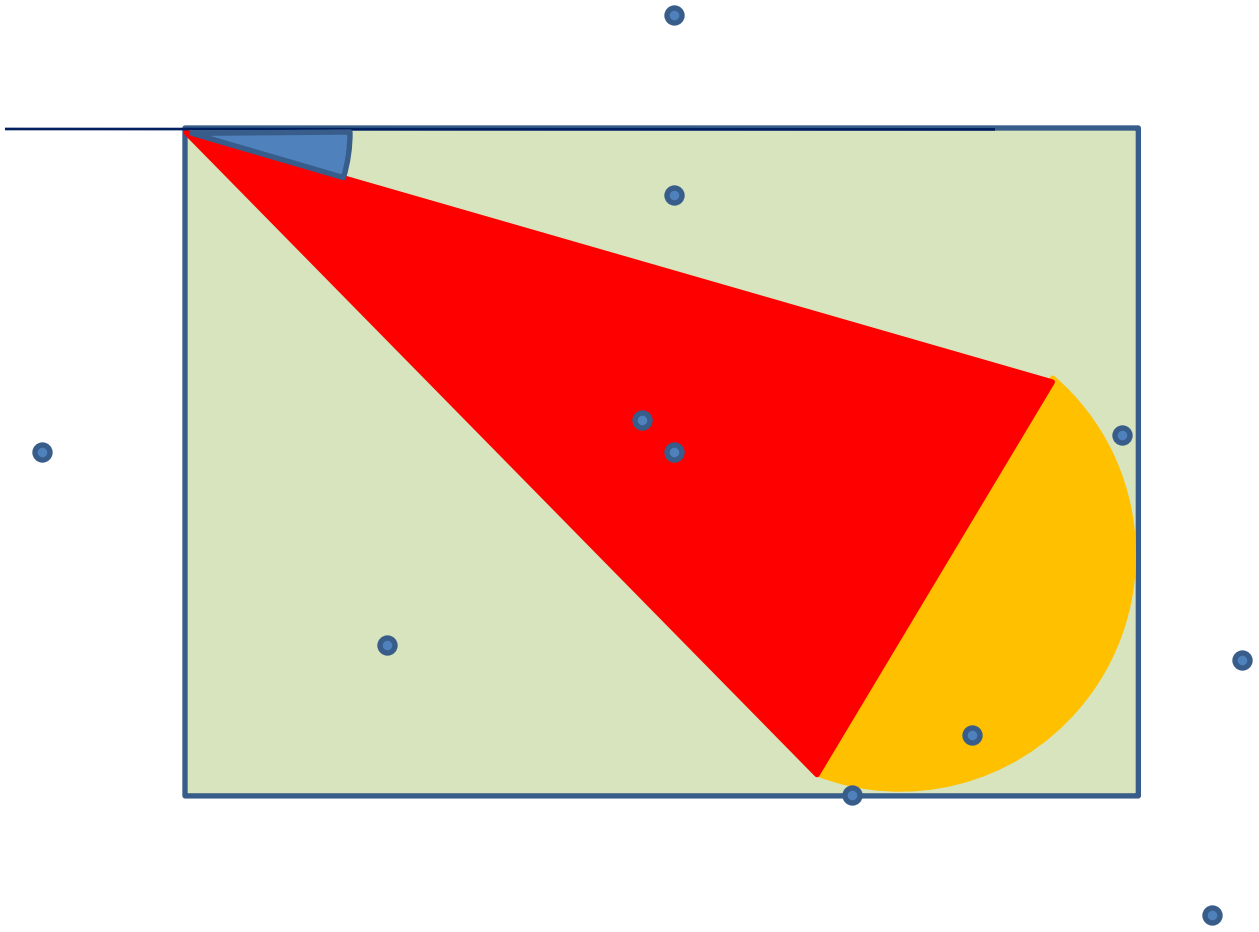



```
x1=face;
y1=0;
x2=face * Math.cos(2*ang+angPet));
y2=face * Math.sin(2*ang+angPet));

Polygon triangulo = new Polygon();
triangulo.addPoint(X, Y);
triangulo.addPoint(X+x1, Y+y1);
triangulo.addPoint(X+x2, Y+y2);

g.setColor(Color.red);
g.fillPolygon(triangulo);
```

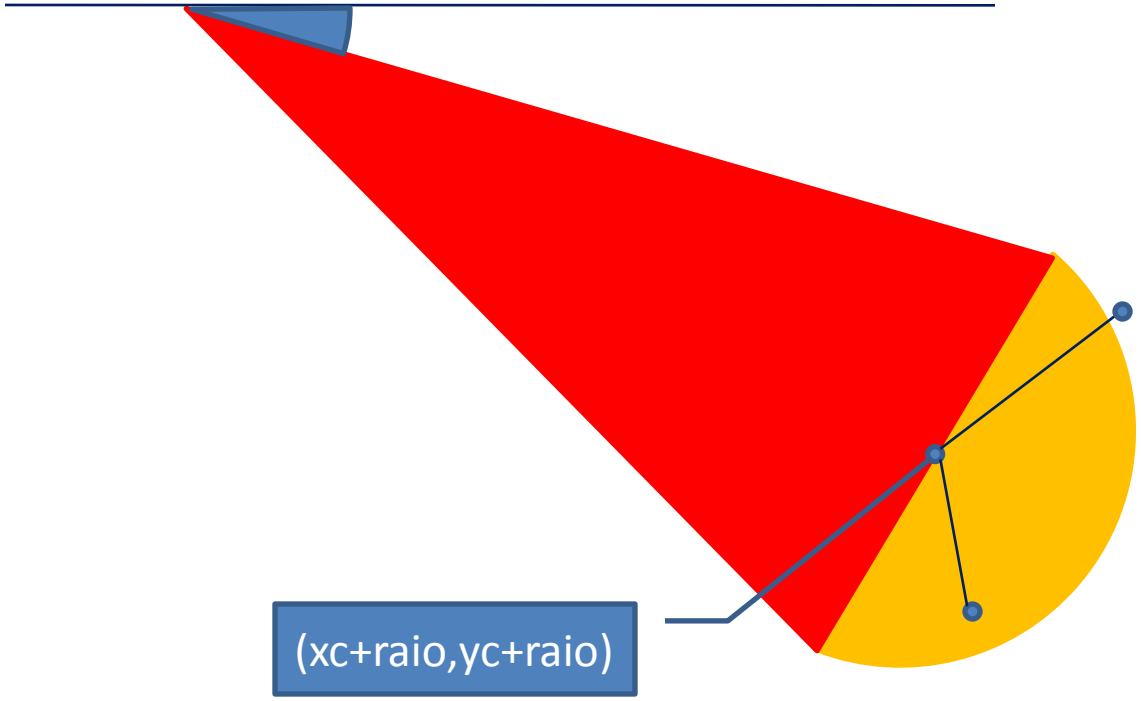
Exemplo – Flor com Pétalas



Ponto xy pertence ao objecto ?



Ponto xy pertence ao objecto ?



- Acertar na pétala

  triangulo.contains(x,y)

  centroCirculo.distance(x,y)<raio

Atenção, há uma parte do circulo que não pode ser incluída