Given a [simple polygon](http://en.wikipedia.org/wiki/Simple_polygon) constructed on a grid of equal-distanced points (i.e., points with [integer](http://en.wikipedia.org/wiki/Integer) coordinates) such that all the polygon's vertices are grid points, **Pick's theorem** provides a simple [formula](http://en.wikipedia.org/wiki/Formula) for calculating the [area](http://en.wikipedia.org/wiki/Area) *A* of this polygon in terms of the number *i* of *lattice points in the interior*located in the polygon and the number *b* of *lattice points on the boundary* placed on the polygon's perimeter:

A = i + \frac{b}{2} - 1.

const int Msize=10001;

LL x[Msize];

LL y[Msize];

LL gcd(LL a,LL b)

{

if(!a) return b;

if(!b) return a;

return \_\_gcd(a,b);

}

LL PiksTheorem(int n)

{

LL sum=0,I,A,B,i;

x[n]=x[0];

y[n]=y[0];

A=0;

B=0;

for(i=0;i<n;i++)

{

A+=x[i]\*y[i+1]-x[i+1]\*y[i];

B +=gcd(abs(x[i]-x[i+1]),abs(y[i]-y[i+1]));

}

A= abs(A);

I = (A-B+2)/2;

return I;

}

int main()

{

int i,j,k,tks,ks=1,n,m;

LL sum=0,I,A,B;

scanf("%d",&tks);

while(tks--)

{

cin>>n;

rii(n) cin>>x[i]>>y[i];

I = PiksTheorem(n);

printf("Case %d: %lld\n",ks++,I);

}

return 0;

}