Try these

x = 2rCos(θ)-rCos(2θ)
Y = 2rSin(θ)-rSin(2θ)

Or it can be expressed as

(x^2+y^2+2rx)^2 = 4r^2(x^2+y^2)

Using polar where x = pCos(θ) y = pSin(θ)
The point (x, y) is p distance from the origin at an angle θ

Try

P = 2r(1-Cos(θ))

And the general type of p^m = a^mCos(mθ) with

m = 1: p = aCos(θ)

m = -1: p = a/Cos(θ)

m = 2: p = a^2Cos(2θ)

m = -2: p = a/Cos(2θ)

m = 0.5: p = aCos^2(θ/2)

m = -0.5: p = 2a/(1+Cos(θ))