**Computing formula for a parabola of width n and height k**:



When:

x=0, y=0 **[1]**

x=n, y=0 **[2]**

x=n/2, y=k **[3]**

Fomula for a parabola is:

y = ax2 + bx +c

Substituting in:

0 = a02 + b0 + c **[1]**

0 = an2 + bn + c **[2]**

k = a(n/2)2 + b(n/2) + c **[3]**

From [1] we have c=0, so we are left with

0 = an2 + bn **[2]**

k = a(n/2)2 + b(n/2) **[3]**

k and n are known, so we are left with simultaneous equations to solve for a and b.

From [2]

b = -an2 / n

b = -an

From [3]

b =

Combining these we get:

-an =

We can then solve for a, which eventually gives:

a = 4k / -n2

So we have our final formulae:

a = 4k / -n2 b = -an c = 0