SHADED AREAS

Squaring formulae

$M = (\ln\sqrt{S^2 * 2} / \ln S)^2 / 2$

$(\ln\sqrt{4^2 * 2} / \ln 4)^2 / 2 = 0.78125$

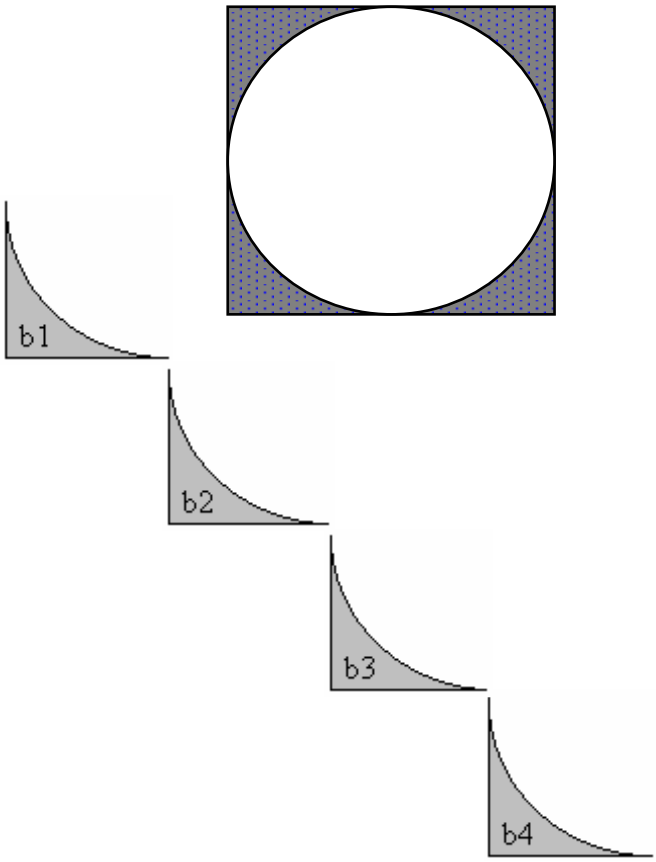
$B = 1 - ((\ln\sqrt{S^2 * 2} / \ln S)^2 / 2)$

Other formulae

$Q = (\ln\sqrt{s^2 * 2} / \ln s)^2 / 2$

$(\ln\sqrt{side^2 * 2} / \ln side)^2 / 2 = 0....$

$b = 1 - ((\ln\sqrt{s^2 * 2} / \ln s)^2 / 2)$



Squainrg formulae & shaded area

$(\ln\sqrt{S^2 * 2} / \ln S)^2 / 2 = M$

$\rightarrow M = 0.78125$

$1 - (\ln\sqrt{S^2 * 2} / \ln S)^2 / 2 = B$

$\rightarrow B = 0.21875$

$(\ln\sqrt{S^2 * 2} / \ln S)^2 * 2 = 4M$

$\rightarrow 4M = 3.125$

$4 - ((\ln\sqrt{S^2 * 2} / \ln S)^2 * 2) = 4B$

$\rightarrow 4B = 0.875$

Other formulae & shaded area

$(\ln\sqrt{s^2 * 2} / \ln s)^2 / 2 = Q$

$\rightarrow Q = 0.----...$

$1 - (\ln\sqrt{s^2 * 2} / \ln s)^2 / 2 = b$

$\rightarrow 2b = 0.----...$

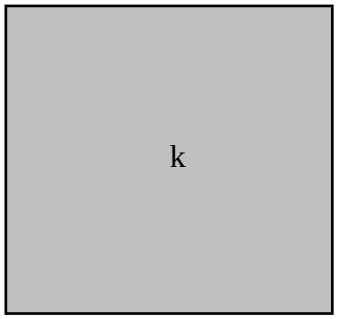
$(\ln\sqrt{s^2 * 2} / \ln s)^2 * 2 = 4Q$

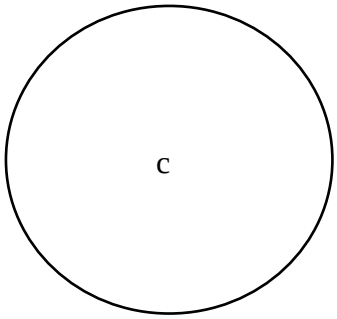
$\rightarrow 4Q = 3.----...$

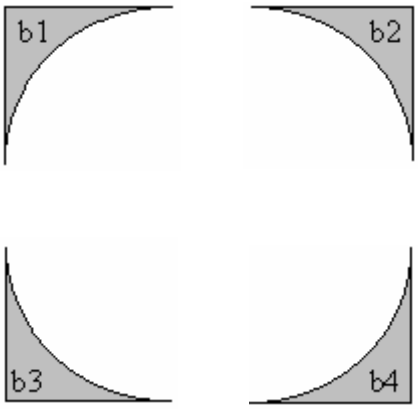
$4 - (\ln\sqrt{s^2 * 2} / \ln s)^2 * 2 = 4b$

$\rightarrow 4b = 0.----...$

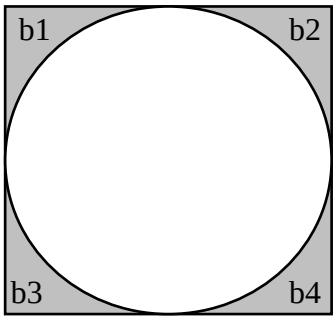
The area and perimeter of the shaded areas around a square with an inner circle are to be calculated.







k - c = 4b



S = side of squaring form s = sides of all squares

The area of the shaded parts and their perimeter are to be calculated. Assume that the area of a square is x units and the perimeter is y units. The area of the circle will be 0.78125 x. If the perimeter of the square is y units, the circumference of the circle will be 0.78125 y.

The shaded parts:

$$B = 1 - ((\ln \sqrt{S^2 * 2} / \ln S)^2 / 2)$$
$$1 - ((\ln \sqrt{4^2 * 2} / \ln 4)^2 / 2) = 0.21875$$
$$B = 1 - 0.78125 = 0.21875$$

B

B indicates the percentage of the square covered by the shaded parts.

$1 - M = B = 0.21875 = 21.875\ \%$

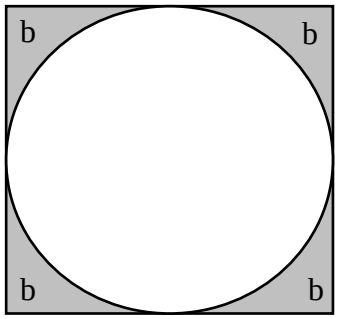
B * y = perimeter of shaded parts

B * x = the area of the shaded parts

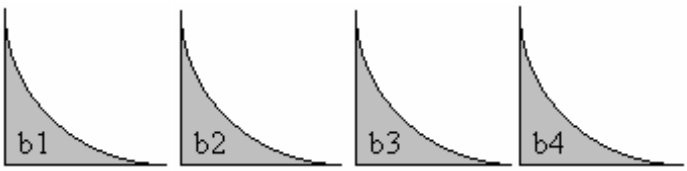
Thus the shaded parts b = $B = 1 - ((\ln\sqrt{S^2 * 2} / \ln S)^2 / 2)$

$1 - ((\ln\sqrt{4^2 * 2} / \ln 4)^2 / 2) = 0.21875$

k - c = 4b



$B \longrightarrow B = 1 - (\ln\sqrt{S^2 * 2} / \ln S)^2 / 2$

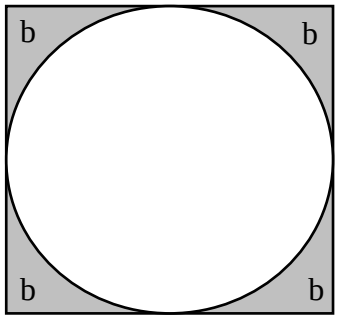


The calculation of the area and the perimeter of the shaded parts are described below:

The area of b = $(s/2)^2 * (1 - ((\ln\sqrt{S^2 * 2} / \ln S)^2 / 2)$

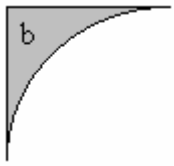
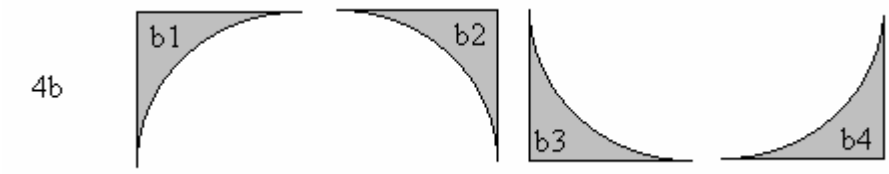
Area of 4b = $s^2 * (1 - ((\ln\sqrt{S^2 * 2} / \ln S)^2 / 2)$

k - c = 4b



The perimeter of b

$b = s + (d * (\ln\sqrt{S^2 * 2} / \ln S)^2 / 2)$



Perimeter of 4b = $s * 4 + (d * 4 * (cy\sqrt{S^2 * 2} / cy\, S)^2 / 2)$