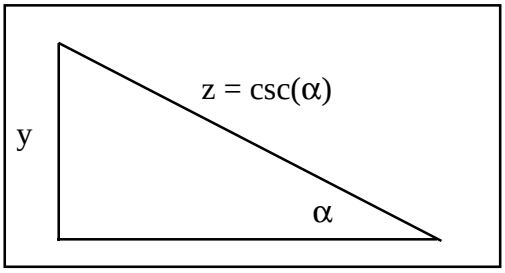
Mathematically Perfect Triangle

The mathematically perfect triangle consists of a basic right triangle where the hypotenuse is equal to the cosecant of the angle and the vertical leg (y) is always equal to one. A wavelength constant, λ_H, a radian (angular) multiplier, ω_f, and the speed of light, c, are the common parameters. When the vertical leg (y) and the hypotenuse (z) are both multiplied by the wavelength constant and the radian frequency multiplier, and then applying the wavelength formula to those results, a numeric symmetry will be evident. The equation sets that are derived using the triangle are as follows:



$\mathbf{f_1 = \omega_f * csc(\alpha)}$	$\mathbf{\lambda_1 = c / f_1}$	(1)
$\mathbf{\lambda_3 = \lambda_H * csc(\alpha)}$	$\mathbf{f_3 = c / \lambda_3}$	(2)
$\mathbf{f_2 = \omega_f * y}$	$\mathbf{\lambda_2 = c / f_2}$	(3)
$\mathbf{\lambda_4 = \lambda_H * y}$	$\mathbf{f_4 = c / \lambda_4}$	(4)

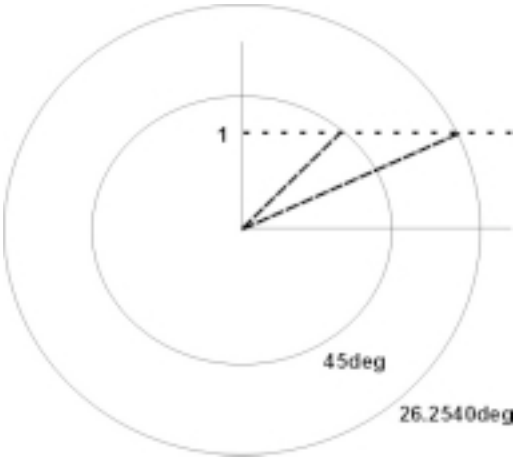
The first 1st and 2nd equations pairs were calculated where csc(a) was the only variable, in an iteration process, until the results matched the 3rd and 4th equations numerically, a 4x4 matrix set.

$\mathbf{f_1 = 14.204 \times 10^6}$	$\mathbf{\lambda_1 = 2110.61\ cm}$
$\mathbf{\lambda_3 = 47.713\ cm}$	$\mathbf{f_3 = 628.31 \times 10^6}$
$\mathbf{f_2 = 6.2831 \times 10^6}$	$\mathbf{\lambda_2 = 4771.3\ cm}$
$\mathbf{\lambda_4 = 21.1061\ cm}$	$\mathbf{f_4 = 1420.4 \times 10^6}$

$\omega_f = 2\pi \times 10^6$ radians
$\lambda_H = 21.10611$ cm #
$c = 29979.2458 \times 10^6$ cm s^{-1}
$y = 1$

The numeric symmetry can exist only for an angle with the cosecant of 2.260645, or 26.25400 degrees. Numeric symmetry can be demonstrated by selecting just the 1st and 4th or the 2nd and 3rd equation sets, 2x2 matrix sets. It is recognized that an equivalent secant value exists but the cosecant value was chosen for this presentation.

Numeric symmetry can be achieved at different angles, but the variable that must be changed is the length of the time segment. At 45 degrees the time segment would be the ratio of the cosecant of 45 degrees to that of 26.25400 degrees, or 0.6255... of our current second. The illustration at the left indicates the time angles and their corresponding neutral hydrogen frequency circles. At 45 degrees the neutral hydrogen frequency would be, $\mathbf{f_{H45} = \omega_f * csc(45) = 888.5765\ (10^6)\ cycles/time\ unit}$.



The hyperfine splitting between F=0 and F=1 in atomic hydrogen is 1420.4057517667 (10^6) Hz, a wavelength of 21.10611407 cm.

Note: The 4x4 equation set is a symmetric matrix (Hermitian). The results were calculated using iterative algebra.