K9AXN Logic script segment 1968:

Calculating radiation Q for 1.5λ center fed resonant dipole in free space and ignoring wire resistance:

Calculate the number of radians from source to end and return to source for each .75λ pole.
(3.14159265359 • 3 = 9.424777961 = 9.424777961) Rad

(.9739502703^$^{9.424777961}$ = .7797613769) 77.97613769% of the voltage will return to the source to add to the source power.

(1 - .7797613769 = .2202386231) 22.02386231% of the voltage and current will be lost to radiation.

(1 ÷ .2202386231 = 4.540529658) = the radiation Q. The radiation Q is the only metric for radiation. The fictitious radiation resistance is calculated by dividing the Z0, or surge resistance of the media, by the radiation Q.

Use a #16 wire, the defacto diameter for the common law ideal antenna. The Z0 will be 437 Ohms.
(437 ÷ 4.540529658 = 96.24427829) Ohms
##
Now calculate the radiation Q of a 1λ wire.
(.9739502703^ 12.56637061=.7177099382
(1-.7177099382 = .2822900618)
(1 ÷ .2822900618 = 3.542455564) The radiation Q of a 1λ wire.
(437 ÷ 3.542455564 = 123.360757) The radiation resistance.

Radiation Q does not care about the diameter of the wire, it cares only for the angular acceleration experienced as a traveling wave moves through time. It is expressed in radians because the force (Radius) will be equal to the angular acceleration (Magnetic curl), much the same as a satellite in orbit. The force of gravity equals the effect of angular acceleration attempting to move in the opposite direction.

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Now, there are some facts that will be controversial but easy to prove in multiple ways.

Calculate for a #12 wire:
408r ÷ 3.542455564 = 115.174345r.

The #36 wire:
(157.48” ÷ .005” = 31496)
(Ln 31496 = 10.35761583)
(10.35761583 - .75 = 9.607615833)

(9.607615833 • 59.95849161 = 576r)
(576 ÷ 3.542455564 = 163r)