Nuclear Info Sheet



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Half Life Equation

$A_E = A_s \times 0.5^n$	A_E = amount ending
	A_s = amount starting
	n = number of half lives

of Half Lives

	t	n = number of half-lives
n =		t = time that has passed
10	h	h = length of a half life

% still radioactive or % decayed

$$\%_{still r.a.} = \frac{A_E}{A_S} \times 100$$
$$\%_{still r.a.} = 0.5^n \times 100$$
$$\%_{decayed} = 100 - \%_{still r.a}$$

Solving for t, or h

A_E = amount ending A_S = amount starting n = number of half lives

Same as this version:

$$\log\left(\frac{A_E}{A_S}\right) = n \times \log(0.5) \qquad \log\left(\frac{A_E}{A_S}\right) = \frac{t}{h} \times \log(0.5)$$

Simply isolate the variable you are trying to solve for

$$t = \frac{h \times \log\left(\frac{A_E}{A_S}\right)}{\log(0.5)} \qquad \qquad h = \frac{t \times \log(0.5)}{\log\left(\frac{A_E}{A_S}\right)}$$