(13) $^{226}_{88}Ra \rightarrow {}^{4}_{2}He + {}^{222}_{86}Rn$

$^{222}_{86}Rn \rightarrow {}^{4}_{2}He + {}^{218}_{84}Po$

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(14) $^{235}_{92}U + {}^{1}_{0}n \rightarrow {}^{135}_{52}Te + 2\,{}^{1}_{0}n + {}^{99}_{40}Zr$

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$92 = 52 + \_\_$

(15) $^{238}_{92}U + {}^{2}_{1}H \rightarrow {}^{238}_{93}Np + 2\,{}^{1}_{0}n$

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(18) $^{73}_{32}Ge + {}^{4}_{2}He \rightarrow {}^{77}_{34}Se$

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(22) $^{210}Pb \rightarrow {}^{206}_{80}Hg$

$t_{1/2} = 22.3\,yr$

$k = \frac{0.693}{22.3} =$

$k = 0.0311\,yr^{-1}$

$A_0 = 7.5\,g\ ^{210}Pb$

$t = 17.5\,yr$

$A_t = \underline{\quad ? \quad}\ ^{210}Pb$

$Hg = \underline{\quad ? \quad}$

$\ln A_t = -kt + \ln A_0$

$\ln A_t = -(0.0311)(17.5) + \ln 7.5 \Leftarrow Pb$

$A_t = 4.35$

$7.5 - 4.35 = 3.15\,g$ of Pb

$3.15\,Pb \left(\frac{206\,Hg}{210\,Pb}\right) = 3.09$

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$E = 3.83 \times 10^{-12} J$ (23)

$E = mc^2$

$3.83 \times 10^{-12} = m (3 \times 10^8)^2$

m (Kg) $\rightarrow 4.26 \times 10^{-29}$ Kg

4.26×10^{-26} g

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PS2

(12) ^{24}Na $t_{1/2}$ 15 hrs

$\delta_{AM} \rightarrow \delta_{PM}$

M W

7.5 δ_{AM} $\rightarrow$ $\delta_{AM(W)}$ 7.5

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