Q1-

$$^{238}_{92}\mathrm{U} \rightarrow {}^{234}_{90}\mathrm{Th} + {}^{4}_{2}\alpha$$

1 1

$$A = 234$$

$$Z = 90$$ 1

Q2-

$$^{234}_{90}\mathrm{Th} \rightarrow {}^{234}_{91}\mathrm{Pa} + {}^{0}_{-1}e + \bar{\nu}$$

1 1 1

$$A = 234$$

$$Z = 91$$ 1

Q3- $238 - 206 = n_a \times 4$ donc $n_a = 8$

1 1

$92 - n_a \times 2 + n_b \times 1 = 82$ donc $n_b = 6$

1 1

Q4- $dN_{238} = -\lambda_{238} N_{238} dt$ 1

Q5- $dN_{Th} = \lambda_{238} N_{238} dt - \lambda_{Th} N_{Th} dt$ 1

Q6- $dN_{Th} = 0$ 1

$N_{Th} = \lambda_{238} N_{238} / \lambda_{Th}$ 1

$N_{Th}/N_{238} = 1{,}47.10^{-11}$ 2

Q7-

$N_{238}(t_s) = N_{238} e^{-\lambda_{238} t_s}$ $N_{235}(t_s) = N_{235} e^{-\lambda_{235} t_s}$ 1

$ln\left[\frac{98{,}28}{0{,}72}\right] = (-\lambda_{238} + \lambda_{235}) t_s$ 1

$t_s = 5{,}87.10^9$ années 1