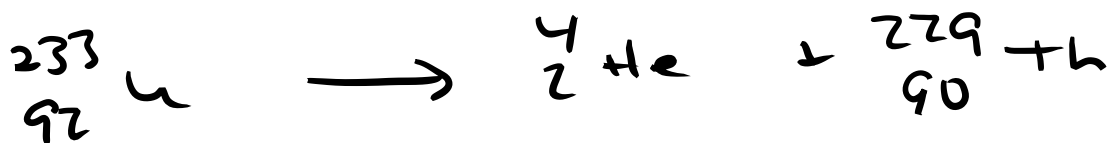
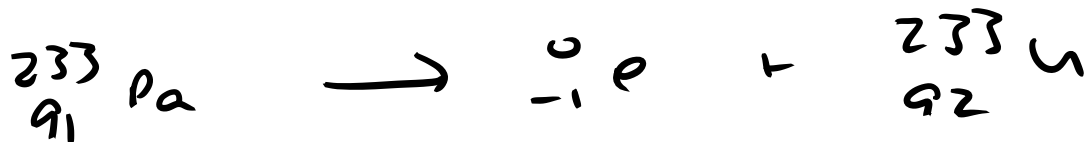
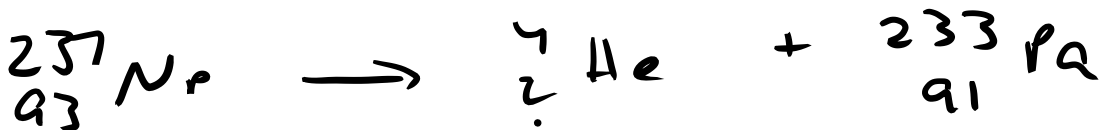
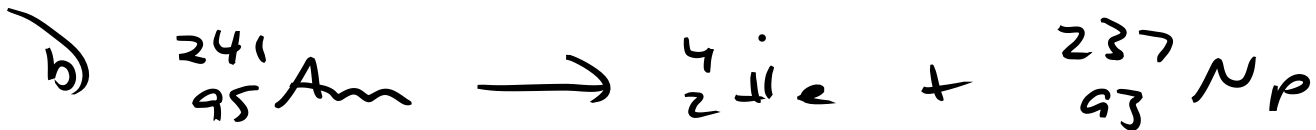
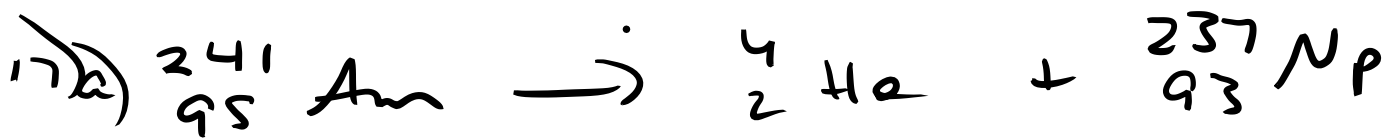
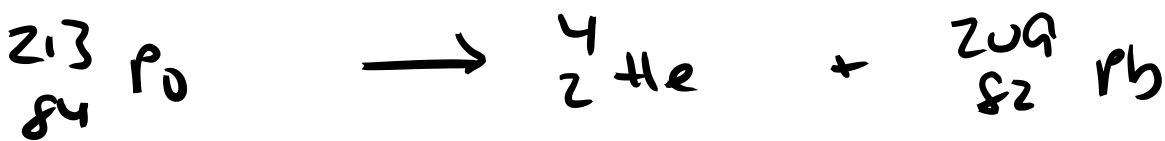
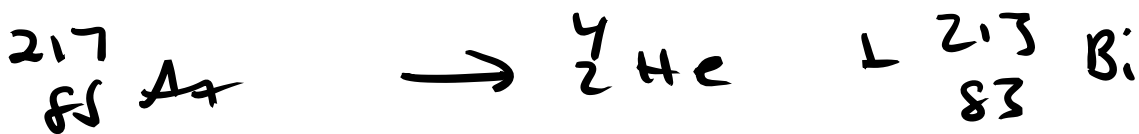
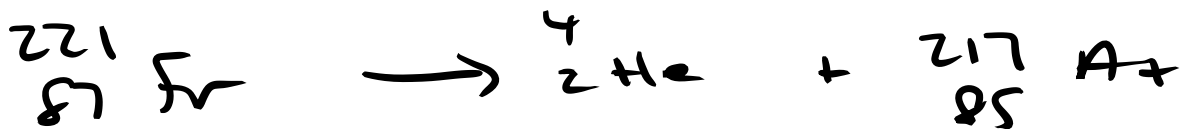
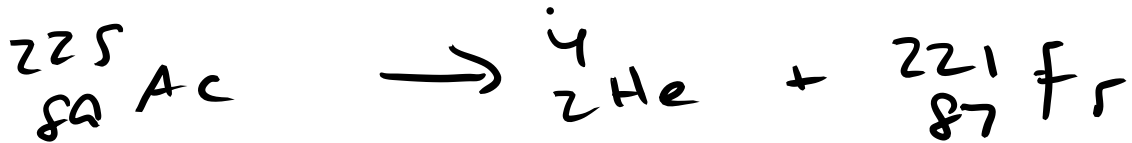
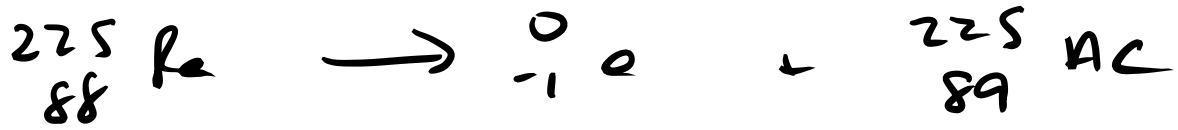


have to have 7 α particles
 have to have 4 β particles

$$7({}_{2}^4\text{He}) + 4({}_{-1}^0\text{e}) = {}_{10}^{28}$$





$$23) \quad k = \frac{0.693}{t_{\frac{1}{2}}}$$

$$1.0 \times 10^{-3} \text{ hr}^{-1} = \frac{0.693}{x}$$

$$x = 693 \text{ hrs}$$

25) $K_r = 81$ is most stable
 $K_r = 73$ is least stable

$$100 \left(\frac{1}{2}\right)^x = 12.5$$

$$\left(\frac{1}{2}\right)^x = 0.125$$

$$\log \left(\frac{1}{2}\right)^x = \log 0.125$$

$$x \log \left(\frac{1}{2}\right) = \log 0.125$$

$$x = 3$$

$$K_r = 73 = 81 \text{ sec}$$

$$K_r = 74 = 34.5 \text{ min}$$

$$K_r = 76 = 44.4 \text{ h}$$

$$K_r = 81 = 6.3 \times 10^{-5} \text{ yrs}$$

29) 64 years

$$\frac{64}{28} = 2.21 \text{ half lives}$$

$$100 \left(\frac{1}{2}\right)^{2.21} = x$$

$$x = 21.690 \quad \text{or} \quad \frac{21.69}{100\%}$$

$$\begin{aligned} 27) \quad \text{original} \cdot \left(\frac{1}{2}\right)^x &= \text{final} \\ &= 5.0 \mu\text{g} \end{aligned}$$

$$\frac{48 \text{ hrs} / 1 \text{ day}}{24 \text{ hrs}} = 2 \text{ days}$$

$$\frac{2}{4.5} = 0.44$$

$$\text{original} \left(\frac{1}{2}\right)^{0.44} = 5.0 \mu\text{g}$$

$$\frac{6.78 \mu\text{g} / 100.00 \mu\text{g}}{47.0 \mu\text{g}} = 14.4 \mu\text{g}$$