

Nom : _____

Applying Knowledge

Nuclear fission and fusion reactions

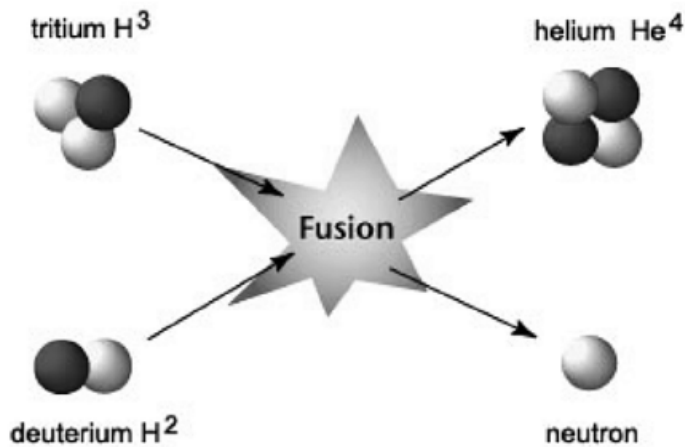
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1. $3\text{}^1_0\text{n}$, Fission ~~$^{239}_{94}\text{Pu}$~~
2. $2\text{}^1_1\text{H}$, Fusion
3. $^{80}_{32}\text{Ge}$, Fission
4. ^1_0n , Fusion
5. $^{235}_{92}\text{U}$, Fission
6. ^1_0n , Fusion
7. $^{113}_{46}\text{Pd}$, Fission
8. $^{127}_{53}\text{I}$, Fission
9. $3\text{}^1_0\text{n}$, Fission
10. $^{239}_{94}\text{Pu}$, Fission

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	Nuclear fission	Nuclear fusion
Give a description of the process.	one heavy unstable nucleus splits up into lighter nuclei	two small nuclei combine to form one large nucleus
What is produced as a result of this nuclear process?	huge amounts of energy; neutrons; radioactive isotopes	huge amounts of energy; neutron(s)
Are the products radioactive?	products are often radioactive	products are not often radioactive
What is needed for this nuclear reaction to occur?	a neutron	high temperature and sufficient pressure
Where does this process occur?	induced fission in nuclear fission reactors; atom bombs	Sun; stars; hydrogen bombs
Give an example of a nuclear equation.	answers may vary ${}_0^1n + {}_{92}^{235}\text{U} \rightarrow {}_{36}^{92}\text{Kr} +$ ${}_{56}^{141}\text{Ba} + 3{}_0^1n + \text{energy}$	answers may vary ${}_1^2\text{H} + {}_1^3\text{H} \rightarrow {}_2^4\text{He} +$ ${}_0^1n + \text{energy}$

2. (a) nuclear fusion



(b) nuclear fission

