Fusion

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1.) Write a definition of nuclear fusion in your own words.

2.) Why must two nuclei be moving at high speeds for nuclear fusion to occur?

3.) Complete the following nuclear fusion reactions:

a.)
$${}_{1}^{2}H + {}_{1}^{2}H \rightarrow {}_{2}^{3}He +$$

b.)
$${}_{2}^{3}H + {}_{2}^{3}H \rightarrow +2 {}_{1}^{1}H$$

c.)
$${}_{2}^{3}H + {}_{2}^{3}H \rightarrow + {}_{1}^{1}H + {}_{1}^{1}H$$

d.)
$${}_{1}^{2}H+ \rightarrow {}_{1}^{3}H + {}_{1}^{1}H$$

4.) What are the major obstacles facing the development of a commercially successful nuclear fusion power plant?

5.) Why does a hydrogen bomb require a nuclear fission bomb?