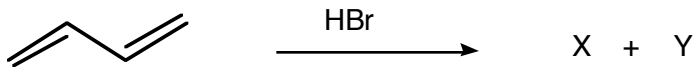
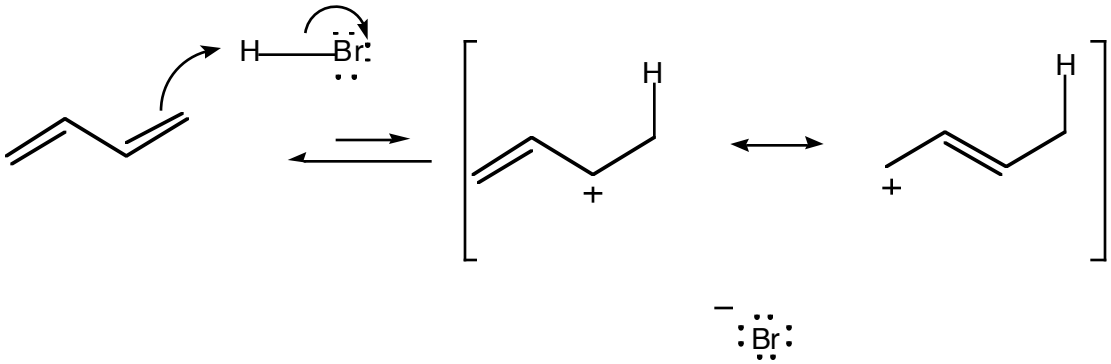
(b) There are two products of the addition of HBr to 1,3-butadiene. What are they, and how are they formed (arrow formalisms, please)?



There are two possible protonations. By far the more favored ion is the following: (why?)



Bromide will now add to the two carbons sharing the positive charge to give the following two products.

You can draw the arrows, but WATCH OUT! Do not fall into the trap of thinking that those resonance forms have a separate existence. ***THEY DO NOT!***