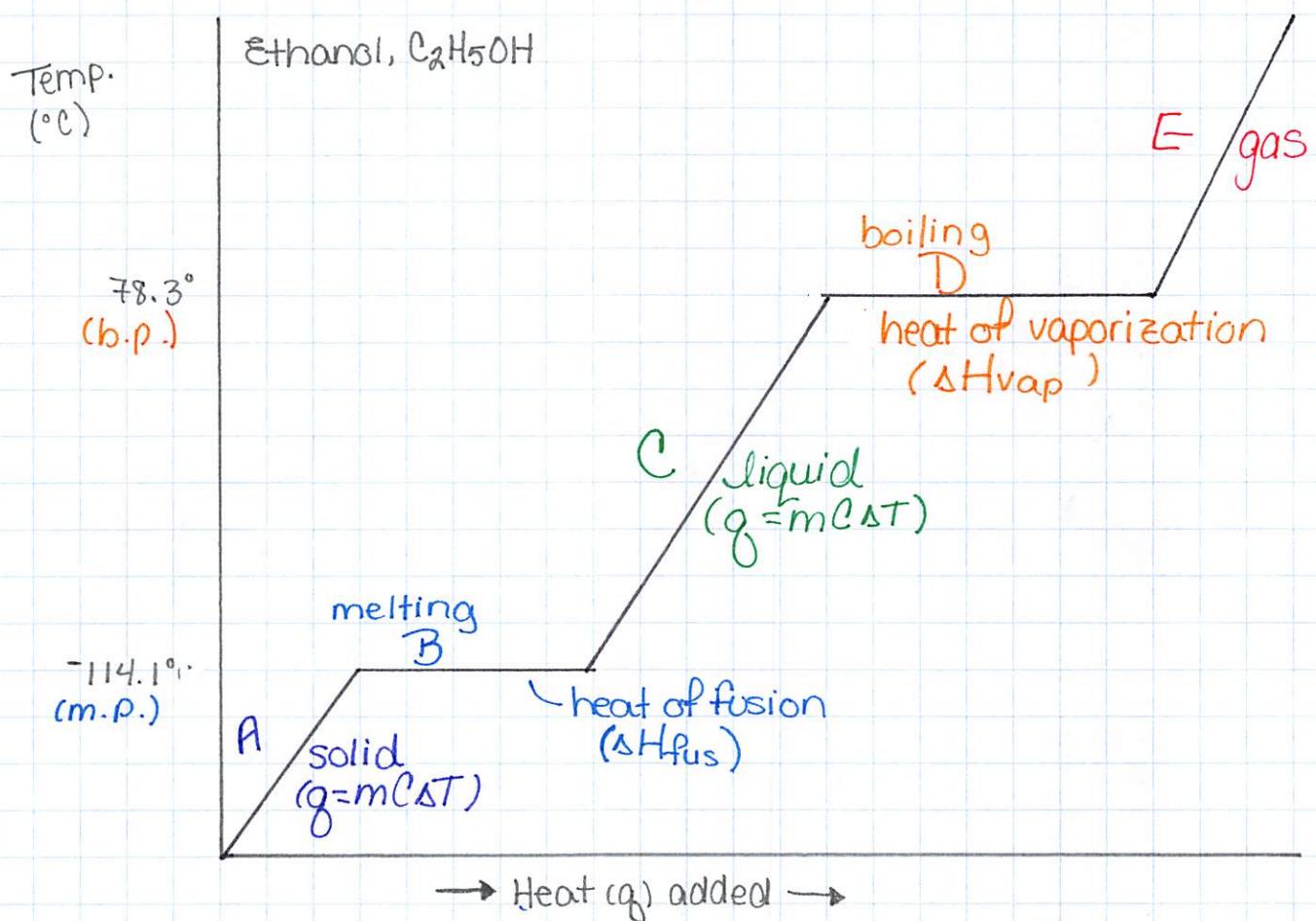


## Heating Curve

shows what happens, thermodynamically, as a substance is heated and changes states of matter.



A. solid - by adding heat, that energy goes into increasing the temp. of the solid ( $\uparrow$  kinetic energy). IMFs are weakening

B melting - added heat goes into weakening the IMFs so the (phase change) solid can melt & become a liquid. The temp. will NOT change until all the solid is melted.

C liquid - by adding heat, the energy goes into increasing the temperature of the liquid ( $\uparrow$  kinetic energy) & further weakening the IMFs

D. boiling - added heat goes into breaking the IMFs so (phase change) the liquid can boil & become a gas. The temp. will NOT change until all the liquid has boiled.

E gas - all the energy goes into increasing the temp. of the gas. (increasing kinetic energy)

The boiling line segment is always longer than the melting one. It takes more energy to break an IMF (during boiling) than it does to weaken an IMF (during melting)