1. Short answer (3 points each). Use the internet if you can't find the answer in the book.
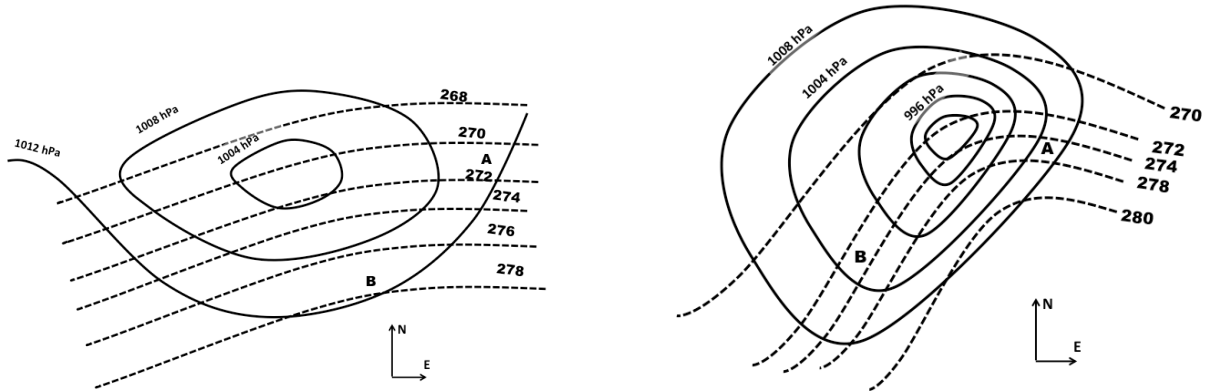
a) Explain why deep convection does not extend far up into the stratosphere?

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b) In which part of the storm are the strongest surface winds in <u>tropical</u> cyclones?

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c) Why does negative ω (pressure vertical velocity) correspond to upward motion?

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d) Why are there no tropical cyclones in the southern hemisphere in the eastern half of the Pacific Ocean?

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2. (8 points) Here we are thinking about the time rate of change of temperature at fixed locations associated with the development of an extratropical cyclone. Use the following schematics to explain the local time rate of change of temperature at point A and B as time evolves from the left schematic to the right schematic (qualitative not quantitative). You must use the term advection in your answers. Assume that the Lagrangian derivative is zero. The solid lines are sea level pressure contours and the dashed lines are isotherms. Assume we are in the northern hemisphere. Assume the point A is at the same, fixed location in the two schematics, and the same assumption holds for point B.

Point A:

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Point B:

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