Name_____

Make a Thundershower

1. What is the temperature of the atmosphere at these pressure levels?

1010 mb 1000mb 900 mb 700 mb 500 mb 300 mb

2. At which levels would you expect there to be moist air?

3. At what pressure level is the cloud base?

4. At what pressure level is the cloud top?

5.How can an air parcel rise to make a thunderstorm when it is cooling off?

6.Which of these can cause the air to rise? Circle all that apply

low pressure high pressure a cold front the sea breeze

7. At the level of free convection the air parcel is now (colder/warmer) than the environment.

8. Air parcels are able to rise because they are (cooler/warmer) than the surrounding atmosphere.

9. If a parcel of air has a temperature of 26^{o}C at the surface, what will its temperature be after it rises 3 km in the atmosphere?

9. The point in the atmosphere where the air parcel becomes a cloud is known as the lifting (vaporization/condensation) level.

10. Imagine a saturated air parcel that has a temperature of -4C is lifted from 1500 m in the atmosphere to 3500 m in the atmosphere. What will its temperature be?

11. At what pressure level will the air parcel stop rising?

12. At what pressure level is the cloud top?

13. What happened to the cloud?

14. At what level did the air parcel stop rising?

15. Why did the air parcel stop rising?

16. What is the level of the new cloud top?

17. What happened to the cloud?

18. The cloud was able to rise because air parcel was (warmer/cooler) than the surrounding atmosphere.

19. Thunderstorms can develop if the atmosphere is (stable/unstable)

20. What happened when we increased the 850 mb temperature?

21. Why do you think this happened?

22. A layer in which the atmospheric temperature increases with height is known as an (instability/inversion)

23. What happened to the cloud?

24. Why do you think this happened?

25. The air temperature and pressure in two cities are both 20C and 1010 mb. City A has a dew point of 5C while City B has a dew point of 17C.

a. Which city has more moisture in the atmosphere?

b. In which city would you expect very shallow cumulus clouds?

26. What are some of the necessary conditions for thunderstorms and severe weather to develop?