

Forty Essential Weather Topics You Must Know for the Private Pilot Oral Exam

1. The three stages of a thunderstorm; which stage(s) contain updrafts, downdrafts or both.
2. Essential conditions for a thunderstorm.
3. How to read and interpret a surface analysis chart, common weather symbols, fronts, and isobars.
4. How to decode an upper air chart including when winds are calm and wind speeds are greater than 100 knots.
5. How to get a weather briefing from FSS and the three types and when you would use them. What phrase is issued for conditions that would make a VFR flight unsafe? What is the standard weather-briefing format?
6. How to get enroute weather.
7. How to read an area forecast (FA).
8. How to read and interpret METARs and TAFs.
9. What three values cause a change in density altitude?
10. Be able to discuss the importance of density altitude. Be able to compute density altitude on your E6B.
11. What is an ISA lapse rate in temperature?
12. How to read a radar summary chart, be able to identify movement, intensity, and tops.
13. How to read and interpret a PROG chart. Identify all weather conditions.
14. Know and identify MVFR, IFR, VFR and LIFR criteria on charts.
15. What is LLWS and where you can get forecast data?
16. What are an ASOS, AWOS and ATIS – be able to briefly describe differences in each.
17. What is the direction of wind around a High or a Low in the Northern Hemisphere? How does wind flow with isobars at surface, at higher altitudes. What causes winds to increase?

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18. Be able to identify common clouds and associated weather.
19. What causes fog and their different types? And where might fog be commonly found.
20. What causes a cloud?
21. What is a temperature inversion and what effects might it have on aircraft performance?
22. Definition of a ceiling?
23. Distance FAA recommends remaining clear of a thunderstorm.
24. Other than turbulence, what are other hazards associated with a thunderstorm?
25. What are the four types of icing and why they are all hazards to general aviation?
26. Three types of satellite images and how to interpret them.
27. Where to get freezing layer information.
28. AIRMETS and SIGMETS – Basic characteristics and data that they contain.
29. Where to get convective forecast data.
30. The effects that temperature and pressure have on your altimeter.
31. How to use an E6B to obtain an estimate of actual altitude.
32. Different types of altitude – what are limitations and risks of your altimeter?
What two types of altitude can your altimeter read?
33. Be able to describe what conditions can lead to an unstable atmosphere?
Where might stability be discussed?
34. What are some FAA ‘sanctioned’ weather sources. What are ‘non-sanctioned’ weather sources but are still valuable.
35. Three sources for an FAA sanctioned weather briefing.
36. How to contact FSS in the air. Three primary means.

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37. Sources of automated weather while enroute.
38. Weather measuring equipment your aircraft is equipped with.
39. Elements of a personal Go – No-Go weather minimums.
40. Deicing equipment your aircraft is equipped with.