

DEPARTMENT OF TRANSPORTATION  
Federal Aviation Administration  
**VFR PILOT EXAM-O-GRAM® NO. 36**

Commonly Misunderstood  
Areas of Aeronautical Knowledge  
(Series 1)



The areas of aeronautical knowledge brought out in this Exam-O-Gram are those with which 50% or more of applicants are experiencing difficulty on the Private Pilot Written Test. A little knowledge is a dangerous thing. Erroneous solutions of problems or improper analyses of operational situations are usually the result of the use of partial information or misinformation, whether it be in flying activities or on written tests. In this Exam-O-Gram a generalized question is posed, followed by a brief introductory discussion. This is done to identify the problem areas. **ANSWERS ARE PURPOSELY WITHHELD TO ENCOURAGE THOROUGH STUDY.** Complete explanations for full understanding may be found in the references given.

**AVIATION WEATHER REPORTS**

1. How can the pilot determine the trend of the ceiling from Aviation Weather (Sequence) Reports?

Example:           0700   0800   0900  
                  12Ø SCT 2ØØ BKN 4Ø               E5Ø BKN 12Ø OVC 4Ø               3Ø SCT E5Ø OVC 3Ø

Keep in mind the conditions that constitute a ceiling, and the contractions used to represent these conditions. Scattered clouds, thin clouds, or partial obscurations are not considered a ceiling. The progressive values denoting the ceiling only, will show the trend of the ceiling. (Ref: Pilot's Handbook of Aeronautical Knowledge and VFR Exam-O-Gram No. 20.)

**TERMINAL FORECASTS**

2. How can the pilot determine the predicted weather for a given station and period in Terminal Forecasts?

All expected cloud bases, with the ceiling specifically identified, are given in height above the surface of the station. When visibilities above a certain value or surface winds below a certain value are expected, they are not included. Any predicted changes during the forecast period are shown immediately following the indicated time of the change. When advisable for safety and efficiency of operation, AMENDED forecasts are issued and are so designated in the heading. (Ref: Pilot's Handbook of Aeronautical Knowledge, VFR Exam-O-Gram No. 26.)

## TEMPERATURE AND HUMIDITY

3. Do high temperature and high humidity adversely affect aircraft performance?

The density of the air in which an aircraft is operated has a significant effect on its operation and performance. The combination of atmospheric pressure, temperature, and humidity influences the air density, and contrary to prevailing opinion, moist air is less dense than dry air. (Ref: Pilot's Handbook of Aeronautical Knowledge; VFR Exam-0-Gram No. 17.)

## CARBURETOR ICE

4. What indications verify the presence and removal of carburetor ice?

The indications, of course, will depend on the type of equipment installed in the aircraft; i. e., manifold pressure gauge, constant-speed propeller, or fixed-pitch propeller. (Ref: Pilot's Handbook of Aeronautical Knowledge.)

## ALTIMETER ERROR

5. What effect does pressure and temperature have on altimeter indications?

Altimeters are calibrated on the basis of both a standard pressure and a standard temperature at sea level with a standard lapse rate (reduction) as altitude is increased. If either of these factors are significantly different than standard for the altitude, an erroneous altitude will be indicated. (Ref: Pilot's Handbook of Aeronautical Knowledge.)

## RADIO FREQUENCIES

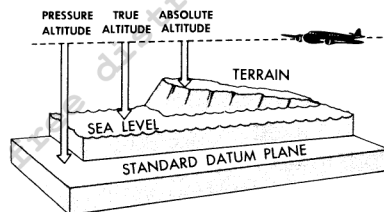
6. What frequencies can be used to communicate with particular radio facilities?

Although the primary frequency on which a facility transmits can often be learned from the aeronautical chart, a complete and current listing of the available frequencies is found in the Airman's Information Manual. Some frequencies are used for both transmitting and receiving, while others, as designated, are for transmitting only or receiving only. (Ref: Pilot's Handbook of Aeronautical Knowledge; VFR Exam-0-Gram No. 50.)

## PRESSURE ALTITUDE

7. How can the pilot in the aircraft determine the pressure altitude?

Erroneously, pressure altitude is often thought to be the actual height above sea level obtained by placing the "altimeter setting" in the pressure dial of an altimeter. However, in reality, it is an altitude which, due to existing pressure, is equivalent to an elevation measured above a standard pressure level or datum plane, and is obtained by applying this standard pressure to the altimeter. Ref: Pilot's Handbook of Aeronautical Knowledge.



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Types of altitude.

## GROUNDSPEED AND HEADING

8. What must be considered when computing groundspeed and heading?

When solving problems involving speed and direction, the elements which relate to each other must be expressed in like terms. That is, speed factors must use the same unit of measurement, and direction components must be based on a common geographical point. Remember that in Winds Aloft Forecasts, wind speed is given in knots, while the aircraft's airspeed is normally given in miles per hour; wind direction is measured from True North, while courses may be True or Magnetic directions. (Ref: Pilot's Handbook of Aeronautical Knowledge; VFR Exam-O-Gram Nos. 17 and 26.)

## AIRCRAFT INSPECTIONS

9. How can the pilot determine when an aircraft is due for an inspection?

The frequency and type of inspections required to be performed on an aircraft by Regulations is dependent on the type of operation in which the aircraft is engaged. Determination of when the next inspection is due should be made by reference to the completion record of the previous inspection entered in the aircraft's maintenance records and not by the Airworthiness Certificate as is frequently believed. (Ref: Federal Aviation Regulations 91.169 through 91.173; VFR Exam-O-Gram No. 26.)

## ACCIDENT REPORTING

10. What are the requirements for the notification and reporting of aircraft accidents?

Although the FAA investigates certain aircraft accidents and incidents, the National Transportation Safety Board Regulations govern the procedures involved in the notification, reporting, and investigation of these occurrences. All pilots are required to be familiar with and comply with the part of NTSB Regulations pertinent to safety investigation. (Ref: National Transportation Safety Board regulation, Part 830; Airman's Information Manual, Part I.)

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