

Sample BFR Questions

Nov 04

Certification and Currency

1. If you hold both a glider and an airplane license, do you need a flight review for each?
No, only one flight review is required (FAR61.56).
2. If you have not had a flight review within the past 24 months, can you act as pilot in command?
No (FAR 61.56).
3. If you change your address, you are required to notify the FAA, in writing, within....
30 days (FAR 61.60)
4. Are you required to log each flight?
No, only the flights needed to meet the requirements of a certificate, rating, or flight review (FAR 61.51).
5. In order to carry passengers you must have how many takeoffs and landings within how many days?
3 within the past 90 days in category and class (FAR 61.57).
6. You hold a private pilot license. Can you accept money if you take a friend up for a ride?
Yes, but only the "pro rata share" of the operating expenses (FAR 61.113).

Operating rules

1. Who is final authority for the safe operation of the flight?
The pilot in command. (FAR 91.3)
2. The responsible person for deciding whether an aircraft is safe for flight is...
The pilot in command.
3. Are you ever allowed to deviate from the FARs?
Yes, in case of emergency. (FAR 91.3)
4. You're flying above 12,500 feet but less than 14,000 feet. How long can you legally fly before you must use oxygen?
30 minutes (FAR 91.211)..
5. You're climbing through 14,000 feet. When must you go on oxygen?
Immediately (FAR 91.211).
6. You are at 10,000 ft and it looks like you'll go up to 18,000 ft. When must your passenger be on oxygen?
No requirement. Oxygen must be AVAILABLE to the passenger above 15,000 ft (FAR 91.211).
7. You've had a beer at 2 AM. You can legally fly no earlier than...
10AM - 8 hours since your last drink.
8. You've had a lot of beers at 2 AM and still feel a bit woozy the next day. The maximum allowable blood alcohol level is?
0.4%. Note that in most states, the max allowable driver limit is about twice that (.08-.10%).
9. What documents are required to be in the aircraft?
ARROW – Airworthiness certificate, Registration, Radio license (only required if operating outside the U.S.), Operator manual, Weight and balance. Note that appropriate cockpit placards may satisfy the "operator manual and weight and balance" requirements.

10. When 2 aircraft approach head on, which way do you pass?
To the right (FAR 91.113).
11. What is "Minimum Safe Altitude"?
An altitude... Allowing a safe landing without undue hazard (FAR 91.119).
12. You want to perform a loop. What is the minimal legal altitude?
1,500 ft (FAR 91.301).
13. How often must a parachute be repacked?
Every 120 days (FAR 91.307).
14. If a parachute repack is beyond the 120 days, may you carry it as a "seat cushion"?
No (FAR 91.307).

Airspace

1. Can a pilot legally fly through a restricted area?
Yes, if authorized by the controlling agency.
2. How do I find who the controlling agency is and how do I contact them?
See the legend of a current sectional chart.
3. Can a pilot legally fly through a Military Operational Area (MOA)?
Yes, but be vigilant about high speed military traffic
4. Can a pilot legally fly through a prohibited area?
No.
5. What is Class D airspace?
Airspace around an airport with an operating control tower (example Worcester, Hanscom, Nashua).
6. Explain the typical dimensions and the rules for operating in class D airspace
7. *5nm radius (but may vary) to 2,500 AGL. Contact control tower prior to entering airspace.*
8. What is Class C airspace?
Airspace surrounding an airport serviced by radar approach control.
9. Explain the dimensions and rules for operating in class C airspace.
Typically 5nm radius from surface to 1200 AGL, then 10nm from 1200AGL to 4000 AGL, but may vary. Establish communications with the radar approach facility prior to entering airspace. A mode C transponder is required (example – Manchester).
10. What is Class B airspace?
Airspace surrounding high density airports serviced by a radar approach facility.
11. Explain the dimensions and rules for operating in class B airspace.
Conceptually like an "upside-down wedding cake" (small at the bottom and larger at higher altitudes). At its outermost limits, class B airspace may have a radius of 20 nm and a height of 10,000 AGL. Before entering Class B airspace, a clearance from the radar controller is required. As in the case of class C airspace, an operating mode C transponder is required (example- Boston).
12. What are the minimum visibility requirements for operating in Class E airspace above 1200 AGL and below 10,000 MSL?
3 miles visibility.
13. What are the minimum cloud clearance requirements for operating in class E airspace above 1200 AGL and below 10,000 MSL?
500 feet below, 1000 feet above, 2000 feet horizontal.
14. You are climbing and nearly at 18000 feet. What now?
Stop your climb – or contact Air Traffic Control and negotiate a "wave window" (this is best done on the ground well in advance of your flight).

15. If you get a clearance to climb above 18,000 ft, what do you do with your altimeter?
Set it to 29.92 (FAR 91.121).

Misc.

1. What is the glider tow rope breaking strength range?
80 – 200% of the max gross weight of the glider.
2. What is the tow rope is too strong.
A “weak link” must be attached (extra points – to which end of the tow rope should the weak link be attached [glider]).
3. Explain the difference between variation and deviation.
Variation is the difference between the magnetic north pole and the true north pole. Deviation is the compass disturbance caused by metal objects or magnetic fields within the aircraft.
4. What is the difference between course and heading?
Course is your track over the ground. Heading is what your compass reads (magnetic course + or - deviation, + or – wind correction).
5. You have gobs of altitude over Sterling and want to fly direct to Sugarbush on a no wind day. Your (current) sectional chart shows a true course of 338 degrees. The magnetic variation is 16 degrees west. Your magnetic course will be?
Add west variation, so $338 + 16 = 354$ degrees magnetic. East variation is subtracted. “East is least and west is best”.
6. A sectional chart is typically valid for how long?
6 months.
7. A tow plane rocks its wings. The glider should...
Release immediately.
8. A tow plane, while airborne, fans its tail. The glider should...
Check to make sure that the spoilers are closed.
9. The glider can not release. It signals the tow plane by...
Moving to the left and rocking the wings.
10. The operating limitations of an aircraft are found in...
The flight manual and/or cockpit placards.

Aerodynamics

1. What is angle of attack?
The angle between the relative wind and the wing chord line.
2. What causes a stall?
Exceeding the critical angle of attack.
3. Can you stall in a dive?
Yes, all that is needed is exceeding the critical AoA.. One way to do this is to pull back too much on the back half of a loop, for instance.
4. Explain the handling and stall characteristic of a glider loaded aft of the Center of Gravity range?
Unstable airspeed control, glider may not drop the nose in a stall, unrecoverable flat spin may develop,
5. How about loaded forward of the C. G. range?
Very stable airspeed control, reduced ability to flare at low landing speed,
6. Explain the danger of an uncoordinated turn close to the ground – such as the turn from base to final?

Stalling while skidding (too much bottom rudder) is likely to result in a spin from which there is not enough altitude to recover from. This is usually quite fatal.

7. What happens to your stall speed in a turn?
It increases. 45 degree bank – 18%, 60 degree bank – 41%, 75 degree bank – 100%.
8. Your published minimum sink speed is 40 mph. You're thermalling with a bank angle of 45 degrees. Your minimum sink speed is?
40 + 18% = 47 mph.
9. List as many ways you can think of how you can detect an approaching stall in straight and level flight.
High nose attitude, low wind noise, sluggish controls, "pre-stall" buffeting, stick back.
10. What action do you take when you encounter sink?
Increase airspeed to minimize your time in the sink. This will cause you to lose the least amount of altitude.
11. Differentiate parasitic drag and induced drag
Induced drag is a byproduct of the production of lift and decreases with the square of the velocity (as angle of attack decreases, induced drag also decreases). Parasitic drag is the resistance of an object or surface to the airflow and increases with the square of the velocity.
12. With respect to parasitic and induced drag, best L/D occurs at which point?
When induced drag equals parasitic drag.
13. Explain the effect of weight on maximum L/D.
Increasing weight increases the max L/D speed. The actual max L/D remains unchanged.
14. Explain the effect of weight on the minimum sink speed and rate.
Increasing weight increases both the minimum sink speed and the minimum sink rate.
15. Your max L/D is 40:1 at 50 kts. If you are penetrating a 25 knot head wind at 50 knots airspeed. Your glide ratio with respect to the ground is?
25:1
16. Explain maneuvering speed and why it is important.
Maneuvering speed is the speed where the maximum deflection of the controls will not exceed the design limitations of the aircraft (typically 3.8 G's). Fly at or below maneuvering speed in severe turbulence to avoid over stressing the airframe.
17. If the maneuvering speed is not published in the aircraft owner manual, what is a close estimation?
Double the stall speed of the aircraft.
18. What is the purpose of the rudder in a turn?
Prevent adverse yaw and to keep the fuselage aligned with the airflow.
19. What is ground effect does what to your glide ratio?
When the aircraft is within a half wing span distance from the ground the wingtip vortices are disrupted, reducing induced drag. The effect increases your glide ratio.

Airmanship, Gliders, and Soaring

1. List several ways of detecting wind direction from the air.
Direction of cloud shadows, wind lines on the water, smoke from the ground, drift of the aircraft, etc.
2. If you are penetrating a head wind, what is a good rule of thumb for selecting your speed to fly to maximize your distance over the ground?
Add half the wind speed to your max L/D speed.

3. When ridge soaring what is the danger of being low behind the ridge?
Encountering the turbulent "rotor," possibly causing loss of control, and/or causing impact with the terrain. Sinking behind the ridge making return to the airport impossible.
4. When over taking a glider on a ridge, on which side do you pass?
Since all turns are made away from the ridge, pass on the side between the glider and the ridge.
5. When multiple glider are working a thermal, who establishes the direction to circle?
The first glider in the thermal.
6. What should you do if you are inadvertently sucked into a cloud?
Open spoilers/dive brakes move trim back and let go of the stick. This is the "benign spiral" mode of flight which works well on many gliders.
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Weather

1. When a fast moving cold front overtakes a warm front, the narrow band of weather formed is called?
A squall line.
2. In this part of the country, when a cold front passes the wind direction generally is?
Northwest.
3. The primary danger of flying in a thunderstorm is?
Severe updrafts and downdraft that may over-stress the airframe.
4. What happens to your perception of attitude when flying in a cloud and what are are the dangers?
You lose sense direction, and wings level. A spiral dive may result causing a great increase in airspeed – possibly to the point where recovery may over-stress the airframe.
5. Explain wind gradient and how it affects your landing.
Wind gradient is the reduction of wind speed as you approach the ground. It may cause you to land short of your target unless carry extra airspeed and/or altitude in anticipation.
6. When flying from a high pressure area to a low pressure area, what is the effect on the altimeter?
The altimeter will read higher than your actual altitude ("from high to low, look out below").
7. With respect to air stability, what is required for a thermal to climb?
An unstable airmass where the air aloft is significantly cooler. The warmer thermal will climb in the cooler air.
8. What formula is a good rule of thumb for estimating cloud height?
Air temp (F) – dew point temp (F) times 227. Example Air temp 80 dew point 60: $(80 - 60) \times 227 = 4,540$ feet. Use 440 for degrees Celsius.