

Which statement is true regarding the effect of fronts on soaring conditions?



- A. Frequently the air behind a cold front provides excellent soaring for several days.
- B. Excellent soaring conditions usually exist in the cold air ahead of a warm front.
- C. A slow-moving front provides the strongest lift.

The conditions most favorable to wave formation over mountainous areas are a layer of



- A. stable air at mountaintop altitude and a wind of at least 15 to 25 knots blowing across the ridge.
- B. unstable air at mountaintop altitude and a wind of at least 15 to 25 knots blowing across the ridge.
- C. moist, unstable air at mountaintop altitude and a wind of less than 5 knots blowing across the ridge.

When soaring in the vicinity of mountain ranges, the greatest potential danger from vertical and rotor-type currents will usually be encountered on the



- A. windward side when flying into the wind.
- B. leeward side when flying into the wind.
- C. leeward side when flying with the wind.

Select the true statement concerning thermals.



- A. A thermal invariably remains directly above the surface area from which it developed.
- B. Strong thermals have proportionately increased sink in the air between them.
- C. Thermals will not develop unless the Sun's rays strike the Earth at a vertical angle.

One of the most dangerous features of mountain waves is the turbulent areas in and



- A. above rotor clouds.
- B. below lenticular clouds.
- C. below rotor clouds.

Which thermal indices would predict the best probability of good soaring conditions?

- A. 5.
- B. -5.



C. -10.

An important precaution when soaring in a dust devil is to



- A. avoid the clear area at the outside edge of the dust because of severe downdrafts.
- B. avoid steep turns on the upwind side to prevent being blown into the vortex.
- C. avoid the eye of the vortex because of extreme turbulence

One of the best visual indications of a thermal is a



- A. fragmented cumulus cloud with a concave base.
- B. broken to overcast sky with cumulus clouds.
- C. smooth cumulus cloud with a concave base.

Convective circulation patterns associated with sea breezes are caused by



- A. land absorbing and radiating heat faster than the water.
- B. warm and less dense air moving inland from over the water, causing it to rise.
- C. cool and less dense air moving inland from over the water, causing it to rise.

Which is true regarding the development of convective circulation?

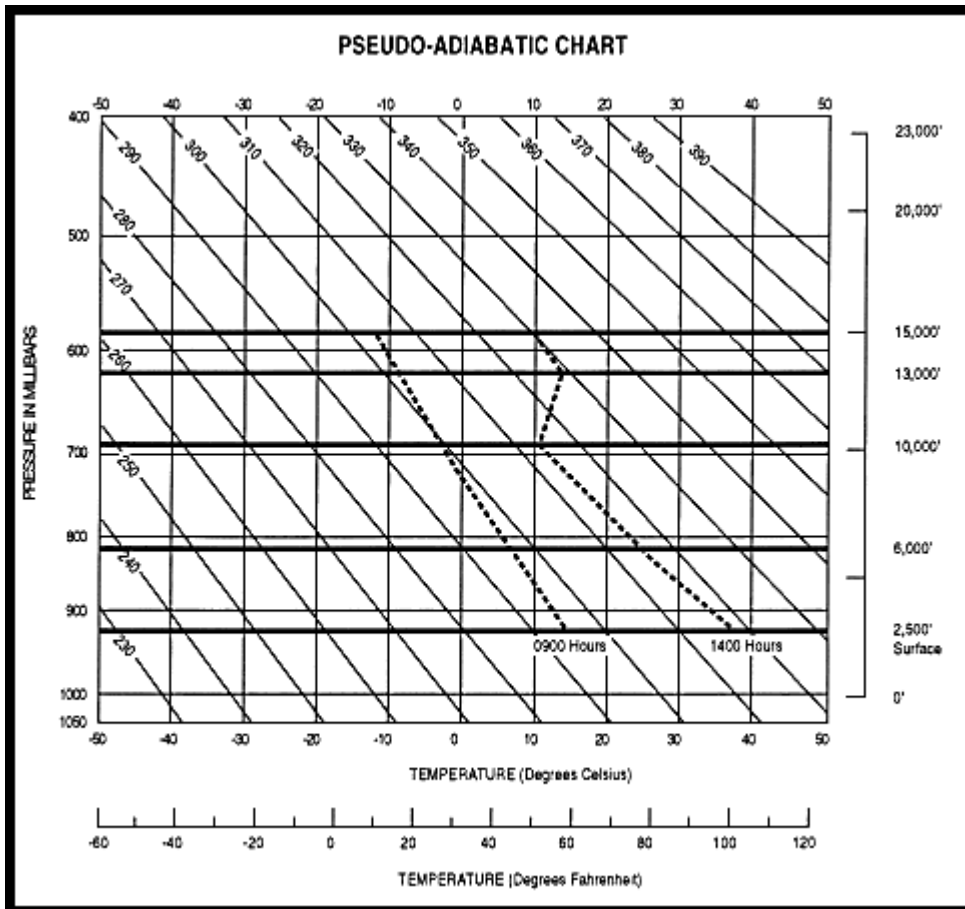


- A. Warm air is less dense and rises on its own accord.
- B. Cool air surrounding convective circulation sinks at a greater rate than the warmer air rises (within the thermal), thus forcing the warmer air upward.
- C. Cool air must sink to force the warm air upward.

Under what condition can enough lift be found for soaring under stable weather conditions?



- A. On the upwind side of hills or ridges with moderate winds present.
- B. In mountain waves that form on the upwind side of the mountains.
- C. Over steep escarpments or cliffs.




(Refer to figure 2.) Using the 0900 sounding, what minimum surface temperature is required for instability to occur and for good thermals to develop from the surface to 15,000 feet MSL?

- A. 58°F.
- B. 90°F.
- C. 80°F.


(Refer to figure 2.) At the 0900 sounding and the line plotted from the surface to 10,000 feet, what temperature must exist at the surface for instability to take place between these altitudes?

- A. Any temperature between 43°F and 68°F.
- B. Any temperature less than 68°F.
- C. Any temperature more than 68°F.


(Refer to figure 2.) According to the sounding taken at 1400, is the atmosphere stable or unstable and at what altitudes?

- A. Unstable from 10,000 to 13,000 feet.
- B. Stable from 6,000 to 10,000 feet.
-  C. Stable from 10,000 to 13,000 feet.


(Refer to figure 2.) Using the 1400 sounding, does an inversion exist and, if so, at what altitudes?

- A. Yes; between 13,000 and 15,000 feet.
- B. No; there is no inversion shown.
-  C. Yes; between 10,000 and 13,000 feet.


Refer to figure 2.) Using the 1400 sounding, between what altitudes could good thermalling be expected?

- A. 10,000 to 13,000 feet.
-  B. 2,500 to 6,000 feet.
- C. 6,000 to 10,000 feet.


To act as pilot in command of a glider using aerotow procedures, a person must have

-  A. received ground and flight training on aerotow procedures and operations in a glider, and received an endorsement from an authorized instructor certifying proficiency.
- B. received 5 hours of ground and flight training on aerotow procedures and operations in a glider, and completed a practical test.
- C. made three solo takeoffs in a glider of the same make and model using aerotow procedures, and received an endorsement from an authorized instructor certifying proficiency in the procedures.


A flight review for a glider pilot must consist of at least 1 hour of ground training and

- A. 1 hour of flight training to include three 360° turns.
-  B. 1 hour of flight training or three instructional flights, each of which includes a flight to traffic pattern altitude.
- C. three takeoffs and landings.


A person seeking a private pilot glider rating is exempt from taking the knowledge test if that person

- A. holds a pilot certificate for any category.
- B. has taken a knowledge test for any powered rating within the preceding 24 months.
-  C. holds a rating for powered aircraft.


The minimum age requirement for the applicant who is seeking a Student Pilot Certificate limited to glider operations is

- A. 16 years.
-  B. 14 years.
- C. 17 years.


An applicant for a Commercial Pilot Certificate with a glider rating must have at least

- A. 200 hours of pilot time in heavier-than-air aircraft, including at least 10 glider flights as pilot in command during which 360° turns were made.
- B. 35 glider flights launched by ground tow or 20 launched by aerotow.
-  C. 25 hours as pilot in gliders and 100 glider flights as pilot in command


What requirement(s) must an authorized instructor meet in order to prepare a glider applicant for an initial Flight Instructor Certificate rating?

- A. Held a Flight Instructor Certificate for 12 months and given a minimum of 80 hours of training.
-  B. Held a Flight Instructor Certificate for at least 24 months and given a minimum of 80 hours of glider training.
- C. Held a Flight Instructor Certificate for 24 months or given 200 hours of flight training

What minimum flight visibility is required when flying a glider above 10,000 feet MSL and more than 1,200 feet AGL?

-  A. 5 SM.
- B. 5 NM.
- C. 3 SM.

Which statement is generally true regarding wing camber of a glider's airfoil?

-  A. The camber is greater on the upper wing surface than it is on the lower surface of the wing.
- B. There is no camber on either the upper or lower surface of the wing.
- C. The camber is the same on both the upper and lower surface of the wing.

When a slight upward or negative flap deflection is used, the result is

- A. increased drag.
- B. decreased lift.



C. decreased drag.

When a glider is turning in flight, the force that opposes the inward turning force is called



A. centrifugal force.

B. adverse yaw.

C. resultant force.

At what bank angle will the resultant of gravity and centrifugal force equal twice a glider's weight?

A. 30°.



B. 60°.

C. 45°.

For a winch tow, which is an advantage of the CG hook over the nose hook?

A. A shallower climb can be used during launch.



B. Glider is less likely to pitch up if the towline breaks.

C. Likelihood of applying too much back-stick pressure is reduced.

Which is true regarding glider tow hooks?

A. Use of a CG hook for winch tows would cause a glider to pitch up.



B. Use of a CG hook for aerotows would cause a glider to pitch up.

C. Use of a nose hitch for aerotows increases the climb attitude and release altitude.

The primary purpose of spoilers on gliders is to

A. decrease stall speed.

B. control speed at steep glide angles.



C. decrease lift.

The advantage of total energy compensators is that this system




A. reduces climb and dive errors on variometer indications caused by airspeed changes.


B. compensates for air pressure changes while climbing or descending.

- C. adds the effect of stick thermals to the total energy produced by thermals.


Which is true concerning total energy compensators?

- A. The instrument indicates the average rate of climb in a thermal.
-  B. The instrument responds only to up and down air currents.
- C. The instrument reacts to climbs and descents like a conventional rate-of-climb indicator.


What is the purpose of the rebreather bag on an oxygen mask in a continuous-flow system?

-  A. Helps to conserve oxygen.
- B. Allows excess oxygen to be expelled during use.
- C. Controls amount of oxygen that each individual breathes through the mask.


What would be the approximate tensile strength of a rope with a 1,000 pound tensile strength if a knot develops in it?

-  A. 500 pounds.
- B. 1,000 pounds.
- C. 800 pounds.

What is the minimum allowable strength of a towline used for the aerotow of a glider having a certificated gross weight of 1,040 pounds?

- A. 1,300 pounds.
-  B. 832 pounds.
- C. 780 pounds.

The best lift/drag ratio of a glider occurs when parasite drag is

- A. equal to total drag.
-  B. equal to induced drag.
- C. less than induced drag.

The best lift/drag ratio of a glider is a value that

- A. varies depending upon the weight being carried.



- B. remains constant and is independent of the weight being carried.
- C. remains constant regardless of airspeed changes.

Which is true about the effect on a glider's performance by the addition of ballast or weight?



- A. The glide ratio at a given airspeed will increase.
- B. A higher airspeed is required to obtain the same glide ratio as when lightly loaded.
- C. The heavier the glider is loaded, the less the glide ratio will be at all airspeeds.

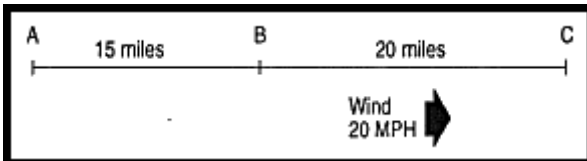
GIVEN:

Maximum auto winch tow speed 69 MPH
Surface wind 5 MPH
Wind gradient 5 MPH

What should the auto winch speed be when a glider reaches an altitude of 200 feet?



- A. 44 MPH.
- B. 49 MPH.
- C. 59 MPH.



(Refer to figure 38.) A glider is flying from A to C. With a normal L/D ratio of 20:1 and a constant airspeed of 40 MPH, what minimum altitude AGL is needed at B to arrive over C at 800 feet AGL with no sinking air?



- A. 3,520 feet.
- B. 6,080 feet.
- C. 4,320 feet.

What consideration should be given in the choice of a towplane for use in aerotows?




- A. Towplane's low-wing loading and low-power loading.
- B. Stall speed of the towplane.

- C. Gross weight of the glider to be towed.


FAA Question Number: **7.1.7.6**

FAA Knowledge Code: **N21**

The reason for retaining water ballast while thermals are strong and dumping the water when thermals weaken is to

- A. decrease the rate of descent.
- B. decrease forward speed.
-  C. increase forward speed.


When flying into a strong headwind on a long glide back to the airport, the recommended speed to use is the

-  A. best lift/drag speed plus half the estimated windspeed at the glider's flight altitude.
- B. best glide speed.
- C. minimum sink speed.

FAA Question Number: **7.1.7.8**

FAA Knowledge Code: **N30**


How can excessive towline slack that is allowed to develop during a glider tow be eliminated?

- A. Execute a shallow banked coordinated turn to either side.
-  B. Yaw the nose to one side with rudder while keeping the wings level with ailerons.
- C. Increase pitch attitude until towline becomes taut.

FAA Question Number: **7.1.7.9**

FAA Knowledge Code: **N30**


What could result if a glider pilot releases while in the low-tow position during an aerotow?

- A. Glider may be forced into the towplane's wake turbulence.
- B. Nose of the glider would tend to pitch up after release.
-  C. Tow ring may strike and damage the glider after release.

FAA Question Number: **7.1.8.0**

FAA Knowledge Code: **N30**

After signalling the tow pilot that the glider pilot cannot release, the tow pilot fishtails the airplane. The glider pilot should then plan fly the final approach in


- A. high-tow position and extend the spoilers just prior to the towplane's touchdown.
-  B. low-tow position and land before the towplane; but use no spoilers or brakes during the landing roll until after the towplane touches down.

- C. the towplane's wake and extend the spoilers as needed for a normal landing.

FAA Question Number: **7.1.8.1**

FAA Knowledge Code: **N31**


During an autolaunch, the pitch angle of the glider should not exceed

- A. 10° at 50 feet, 20° at 100 feet, and 45° at 200 feet.
-  B. 15° at 50 feet, 30° at 100 feet, and 45° at 200 feet.
- C. 15° at 50 feet, 20° at 100 feet, and 40° at 200 feet.

FAA Question Number: **7.1.8.2**

FAA Knowledge Code: **N31**


At what point during an autotow should the glider pilot establish the maximum pitch attitude for the climb?

- A. 100 feet above the ground.
-  B. 200 feet above the ground.
- C. Between 300 and 400 feet above the ground.

FAA Question Number: **7.1.8.3**

FAA Knowledge Code: **N31**


When preparing for an autotow with a strong crosswind, where should the glider and towrope be positioned?

- A. Obliquely to the line of takeoff on the upwind side of the tow vehicle.
- B. Directly behind the tow vehicle and crabbed into the wind with the wing runner holding the upwind wingtip.
-  C. Obliquely to the line of takeoff on the downwind side of the tow vehicle.

FAA Question Number: **7.1.8.4**

FAA Knowledge Code: **N31**

During a ground launch, how is the airspeed of a glider increased?

-  A. Raise the nose.
- B. Lower the nose.
- C. Increase speed of vehicle or winch.

FAA Question Number: **7.1.8.5**

FAA Knowledge Code: **N31**

During a winch launch, which factor would most likely result in pitch oscillations?

- A. Winching speed too fast.
- B. Winching speed too slow.



- C. Insufficient up-elevator control.

FAA Question Number: **7.1.8.6**

FAA Knowledge Code: **N32**

Unless adequate speed control is maintained during the turn to base and the final approach for a landing into the wind, which would most likely occur if a steep wind gradient existed?



- A. The desired landing spot would be undershot or the glider would stall.
- B. The wingtip on the outside of the turn would stall before the wingtip on the inside of the turn.
- C. The airspeed on final approach would increase, causing the glider to overshoot the desired landing spot.

FAA Question Number: **7.1.8.7**

FAA Knowledge Code: **N32**

A rule of thumb for flying a final approach is to maintain a speed that is



- A. 50 percent above the glider's stall speed, regardless of windspeed.
- B. twice the glider's stall speed plus half the estimated windspeed.
- C. 50 percent above the glider's stall speed plus half the estimated windspeed.

FAA Question Number: **7.1.8.8**

FAA Knowledge Code: **N32**

If swirling dust, leaves, or debris indicate a strong thermal on the final approach to a landing, it is recommended that the glider pilot



- A. open the spoilers and maintain a constant airspeed.
- B. open the spoilers and reduce the airspeed.
- C. close the spoilers and increase the airspeed.

FAA Question Number: **7.1.8.9**

FAA Knowledge Code: **N33**

With regard to two or more gliders flying in the same thermal, which statement is true?




- A. All turns should be to the right.
- B. Turns should be made in the same direction as the first glider to enter the thermal.
- C. Turns should be in the same direction as the highest glider

FAA Question Number: **7.1.9.0**


FAA Knowledge Code: **N33**

Which is true relating to the direction in which turns should be made during slope soaring?

- A. All reversing turns should be made to the left.
-  B. All reversing turns should be made into the wind away from the slope.
- C. All turns should be made downwind toward the slope.


FAA Question Number: **7.1.9.1**
FAA Knowledge Code: **N34**

While maintaining the best glide speed, a glider pilot may expect the

-  A. longest cross country flight.
- B. loss of the least amount of altitude.
- C. fastest cross country speed.


FAA Question Number: **7.1.9.2**
FAA Knowledge Code: **N34**

What is the suggested speed to fly when passing through lift with no intention to work the lift?

-  A. Minimum sink speed.
- B. Best lift/drag speed.
- C. Best glide speed.


FAA Question Number: **7.1.9.3**
FAA Knowledge Code: **N34**

When making an off-field landing, it is recommended that the landing be accomplished

- A. in cultivated fields where the crops have not yet been harvested.
- B. in pastures which are seldom cultivated.
-  C. uphill, if possible, regardless of the wind direction.

FAA Question Number: **7.1.9.4**
FAA Knowledge Code: **N34**

Which would most likely ensure a safe off-field landing?

-  A. Maintaining an approach airspeed of at least 50 percent above the glider's stall speed plus half the estimated windspeed.
- B. Landing into the wind, regardless of the type or slope of the terrain.
- C. Landing in a pasture or uncultivated field rather than one in cultivation and whose crops have been harvested.