



**OPCION B:** A calm or light wind near the surface and a relatively strong wind just above the inversion.

**OPCION C:** A wind direction difference of at least 30° between the wind near the surface and the wind just above the inversion.

PREG20078711 Clear air turbulence (CAT) associated with a mountain wave may extend as far as B

**OPCION A:** 1,000 miles or more downstream of the mountain.

**OPCION B:** 5,000 feet above the tropopause.

**OPCION C:** 100 miles or more upwind of the mountain.

PREG20078703 Which type of icing is associated with the smallest size of water droplet similar to that found in low-level stratus clouds? C

**OPCION A:** Clear ice.

**OPCION B:** Frost ice.

**OPCION C:** Rime ice.

PREG20078734 Which type weather conditions are covered in the Convective SIGMET A

**OPCION A:** Embedded thunderstorms, lines of thunderstorms, and thunderstorms with 3/4-inch hail or tornadoes.

**OPCION B:** Cumulonimbus clouds with tops above the tropopause and thunderstorms with 1/2-inch hail or funnel clouds.

**OPCION C:** Any thunderstorm with a severity level of VIP 2 or more

PREG20078735 The purpose of diluting ethylene glycol deicing fluid with water in non-precipitation conditions is to B

**OPCION A:** raise the eutectic point.

**OPCION B:** decrease the freeze point.

**OPCION C:** increase the minimum freezing point (onset of crystallization).

PREG20078753 The VV001 in the following METAR indicates B

METAR KFSM 131756Z AUTO 00000KT M1/4SM  
R25/0600V1000FT -RA FG VV001 A2989 RMK AO2 VIS 3/4  
RWY19 CHINO RWY19 \$

**OPCION A:** an observer reported the vertical visibility as 100 feet.

**OPCION B:** a 100 foot indefinite ceiling.

**OPCION C:** the variability value is 100 feet.

PREG20078685 Which type storms are most likely to produce funnel clouds or tornadoes? B

**OPCION A:** Air mass thunderstorms.

**OPCION B:** Cold front or squall line thunderstorms.

**OPCION C:** Storms associated with icing and supercooled water.

---

PREG20078640	When does minimum temperature normally occur during a 24-hour period?	A
<b>OPCION A:</b>	After sunrise.	
<b>OPCION B:</b>	About 1 hour before sunrise.	
<b>OPCION C:</b>	At midnight.	

---

PREG20078683	Why are downdrafts in a mature thunderstorm hazardous?	A
<b>OPCION A:</b>	Downdrafts are kept cool by cold rain which tends to accelerate the downward velocity.	
<b>OPCION B:</b>	Downdrafts converge toward a central location under the storm after striking the surface.	
<b>OPCION C:</b>	Downdrafts become warmer than the surrounding air and reverse into an updraft before reaching the surface.	

---

PREG20078634	Fig. 144 How will the aircraft in position 4 be affected by a microburst encounter?	B
<b>OPCION A:</b>	Performance increasing with a tailwind and updraft.	
<b>OPCION B:</b>	Performance decreasing with a tailwind and downdraft.	
<b>OPCION C:</b>	Performance decreasing with a headwind and downdraft.	

---

PREG20078635	What is the expected duration of an individual microburst?	C
<b>OPCION A:</b>	Two minutes with maximum winds lasting approximately 1 minute.	
<b>OPCION B:</b>	One microburst may continue for as long as 2 to 4 hours.	
<b>OPCION C:</b>	Seldom longer than 15 minutes from the time the burst strikes the ground until dissipation.	

---

PREG20078636	What is a characteristic of the troposphere?	B
<b>OPCION A:</b>	It contains all the moisture of the atmosphere.	
<b>OPCION B:</b>	There is an overall decrease of temperature with an increase of altitude.	
<b>OPCION C:</b>	The average altitude of the top of the troposphere is about 6 miles.	

---

PREG20078637	What is the primary cause of all changes in the Earth's weather?	A
<b>OPCION A:</b>	Variations of solar energy at the Earth's surface.	
<b>OPCION B:</b>	Changes in air pressure over the Earth's surface.	
<b>OPCION C:</b>	Movement of air masses from moist areas to dry areas.	

---

PREG20078638	What characterizes a ground-based inversion?	C
<b>OPCION A:</b>	Convection currents at the surface.	
<b>OPCION B:</b>	Cold temperatures.	
<b>OPCION C:</b>	Poor visibility.	

---

PREG20078639	What feature is associated with a temperature inversion?	A
<b>OPCION A:</b>	A stable layer of air.	

**OPCION B:** An unstable layer of air.

**OPCION C:** Air mass thunderstorms.

PREG20078641 Which area or areas of the Northern Hemisphere experience a generally east to west movement of weather systems? B

**OPCION A:** Arctic only

**OPCION B:** Arctic and subtropical

**OPCION C:** Subtropical only

PREG20078684 What is a difference between an air mass thunderstorm and a steady-state thunderstorm? B

**OPCION A:** Air mass thunderstorms produce precipitation which falls outside of the updraft.

**OPCION B:** Air mass thunderstorm downdrafts and precipitation retard and reverse the updrafts.

**OPCION C:** Steady-state thunderstorms are associated with local surface heating.

PREG20078643 Which type wind flows downslope becoming warmer and dryer? C

**OPCION A:** Land breeze.

**OPCION B:** Valley wind.

**OPCION C:** Katabatic wind.

PREG20078644 What is a feature of air movement in a high pressure area? B

**OPCION A:** Ascending from the surface high to lower pressure at higher altitudes.

**OPCION B:** Descending to the surface and then outward.

**OPCION C:** Moving outward from the high at high altitudes and into the high at the surface.

PREG20078645 Where is the usual location of a thermal low? C

**OPCION A:** Over the arctic region.

**OPCION B:** Over the eye of a hurricane.

**OPCION C:** Over the surface of a dry, sunny region.

PREG20078646 Freezing rain encountered during climb is normally evidence that B

**OPCION A:** a climb can be made to a higher altitude without encountering more than light icing.

**OPCION B:** a layer of warmer air exists above.

**OPCION C:** ice pellets at higher altitudes have changed to rain in the warmer air below.

PREG20078692 When flying over the top of a severe thunderstorm, the cloud should be overflowed by at least A

**OPCION A:** 1,000 feet for each 10 knots windspeed.

**OPCION B:** 2,500 feet.

---

**OPCION C:** 500 feet above any moderate to a severe turbulence layer.

---

PREG20078701 What condition is necessary for the formation of structural icing in flight? C

**OPCION A:** Supercooled water drops.

**OPCION B:** Water vapor.

**OPCION C:** Visible water.

---

PREG20078687 Which conditions are necessary for the formation of upslope fog? A

**OPCION A:** Moist, stable air behind moved over gradually rising ground by a wind.

**OPCION B:** A clear sky, little or no wind, and 100 percent relative humidity.

**OPCION C:** Rain falling through stratus clouds and a 10- to 25-knot wind moving the precipitation up the slope.

---

PREG20078688 How are haze layers cleared or dispersed? B

**OPCION A:** By convective mixing in cool night air.

**OPCION B:** By wind or the movement of air.

**OPCION C:** By evaporation similar to the clearing of fog.

---

PREG20078689 Which feature is associated with the tropopause? C

**OPCION A:** Absence of wind and turbulence.

**OPCION B:** Absolute upper limit of cloud formation.

**OPCION C:** Abrupt change of temperature lapse rate.

---

PREG20078690 Which type cloud is associated with violent turbulence and a tendency toward the production of funnel clouds? A

**OPCION A:** Cumulonimbus mamma.

**OPCION B:** Standing lenticular.

**OPCION C:** Stratocumulus.

---

PREG20078691 A clear area in a line of thunderstorm echoes on a radar scope indicates C

**OPCION A:** the absence of clouds in the area.

**OPCION B:** an area of no convective turbulence.

**OPCION C:** an area where precipitation drops are not detected.

---

PREG20078718 What is the single source reference that contains information regarding volcanic eruption, turbulence, and icing conditions for a specific region? B

**OPCION A:** Weather Depiction Chart

**OPCION B:** In flight weather advisories

**OPCION C:** Area forecast

---

PREG20078702 Which type precipitation is an indication that supercooled water is present? B

---

**OPCION A:** Wet snow.

**OPCION B:** Freezing rain.

**OPCION C:** Ice pellets.

---

PREG20078693 What type weather change is to be expected in an area where frontolysis is reported? B

**OPCION A:** The frontal weather is becoming stronger.

**OPCION B:** The front is dissipating.

**OPCION C:** The front is moving at a faster speed.

---

PREG20078695 Which atmospheric factor cause rapid movement of surface fronts? A

**OPCION A:** Upper winds blowing across the front.

**OPCION B:** Upper low located directly over the surface low.

**OPCION C:** The cold front overtaking and lifting the warm front.

---

PREG20078696 In which meteorological conditions can frontal waves and low pressure areas form? B

**OPCION A:** Warm fronts or occluded fronts.

**OPCION B:** Slow-moving cold fronts or stationary fronts.

**OPCION C:** Cold front occlusions.

---

PREG20078697 What weather difference is found on each side of a "dry line"? B

**OPCION A:** Extreme temperature difference.

**OPCION B:** Dewpoint difference.

**OPCION C:** Stratus versus cumulus clouds.

---

PREG20078698 Under what conditions would clear air turbulence (CAT) most likely be encountered? A

**OPCION A:** When constant pressure charts show 20-knot isotachs less than 60 NM apart.

**OPCION B:** When constant pressure charts show 60-knot isotachs less than 20 NM apart

**OPCION C:** When a sharp trough is moving at a speed less than 20 knots.

---

PREG20078699 What action is recommended when encountering turbulence due to a wind shift associated with a sharp pressure trough? A

**OPCION A:** Establish a course across the trough.

**OPCION B:** Climb or descend to a smoother level.

**OPCION C:** Increase speed to get out of the trough as soon as possible.

---

PREG20078700 In comparison to an approach in a moderate headwind, which is an indication of a possible wind shear due to a decreasing headwind when descending on the glide slope? B

**OPCION A:** Less power is required.

**OPCION B:** Higher pitch attitude is required.

**OPCION C:** Lower descent rate is required.

PREG20078694 Which weather condition is an example of a nonfrontal instability band? A

**OPCION A:** Squall line.

**OPCION B:** Adveective fog.

**OPCION C:** Frontogenesis.

PREG20078719 Which primary source contains information regarding the expected weather at the destination airport, at the ETA? C

**OPCION A:** Low-Level Prog Chart.

**OPCION B:** Radar Summary and Weather Depiction Charts.

**OPCION C:** Terminal Aerodrome Forecast.

PREG20078730 METAR KHRO 131753Z 09007KT 7SM FEW020 BKN040 30/27 A3001. B  
SPECI KHRO 131815Z 13017G26KT 3SM +TSRA SCT020 BKN045TCU 29/24 A2983 RMK RAB12 WS TKO LDG RW14R FRQ LTGICCG VC.

What change has taken place between 1753 and 1815 UTC at Harrison (KHRO)?

**OPCION A:** The ceiling lowered and cumulonimbus clouds developed.

**OPCION B:** Thundershowers began at 12 minutes past the hour.

**OPCION C:** Visibility reduced to IFR conditions.

PREG20078721 Which are the only cloud types forecast in the Terminal Aerodrome Forecast? B

**OPCION A:** Altocumulus.

**OPCION B:** Cumulonimbus.

**OPCION C:** Stratocumulus.

PREG20078740 Snow on top of deicing or anti-icing fluids B

**OPCION A:** need not be considered as adhering to the aircraft.

**OPCION B:** must be considered as adhering to the aircraft.

**OPCION C:** must be considered as adhering to the aircraft, but a safe takeoff can be made as it will blow off.

PREG20078741 Freezing Point Depressant (FPD) fluid residue on engine fan or compressor blades C

**OPCION A:** can increase performance and cause stalls or surges.

**OPCION B:** could cause FDP vapors to enter the aircraft but would have no affect on engine thrust or power.

---

**OPCION C:** can reduce engine performance and cause surging and/or compressor stalls.

---

PREG20078742 The adverse effects of ice, snow, or frost on aircraft performance and flight characteristics include decreased lift and C

**OPCION A:** increased thrust.

**OPCION B:** a decreased stall speed.

**OPCION C:** an increased stall speed.

---

PREG20078743 Test data indicate that ice, snow, or frost having a thickness and roughness similar to medium or coarse sandpaper on the leading edge and upper surface of a wing can B

**OPCION A:** reduce lift by as much as 40 percent and increase drag by 30 percent.

**OPCION B:** reduce lift by as much as 30 percent and increase drag by 40 percent.

**OPCION C:** increase drag and reduce lift by as much as 40 percent.

---

PREG20078744 What is the effect of Freezing Point Depressant (FPD) fluid residue on engine fan or compressor blades? C

**OPCION A:** could cause FPD vapors to enter the aircraft but would have no affect on engine thrust or power.

**OPCION B:** It can increase performance and cause stalls or surges.

**OPCION C:** It can reduce engine performance and cause surging and/or compressor stalls.

---

PREG20078745 The horizontal wind shear, critical for turbulence (moderate or greater) per 150 miles is B

**OPCION A:** 18 knots or less.

**OPCION B:** greater than 18 knots.

**OPCION C:** not a factor, only vertical shear is a factor.

---

PREG20078739 Test data indicate that ice, snow, or frost having a thickness and roughness similar to medium or coarse sandpaper on the leading edge and upper surface of a wing can C

**OPCION A:** reduce lift by as much as 40 percent and increase drag by 30 percent.

**OPCION B:** increase drag and reduce lift by as much as 40 percent.

**OPCION C:** reduce lift by as much as 30 percent and increase drag by 40 percent.

---

PREG20078746 A severe thunderstorm is one in which the surface wind is A

**OPCION A:** 50 knots greater and/or surface hail is 3/4 inch or more in diameter.

**OPCION B:** 55 knots or greater and/or surface hail is 1/2 inch or more in diameter.

**OPCION C:** 45 knots or greater and/or surface hail is 1 inch or more in diameter.

---

PREG20078748 A squall line is a sudden increase of at least 15 knots in average wind speed to a sustained speed of B

**OPCION A:** 24 knots or more for at least 1 minute.



---

**OPCION B:** 22 knots or more for at least 2 minutes.  
**OPCION C:** 20 knots or more for at least 1 minute.

---

PREG20078749 A calm wind that is forecast, in the International Terminal Aerodrome Forecast (TAF), is encoded as **B**

**OPCION A:** VRB00KT.  
**OPCION B:** 00000KT.  
**OPCION C:** 00003KT.

---

PREG20078750 In the International Terminal Aerodrome Forecast (TAF), a variable wind direction is noted by "VRB" where the three digit direction usually appears. A calm wind appears in the TAF as **C**

**OPCION A:** 00003KT.  
**OPCION B:** VRB00KT.  
**OPCION C:** 00000KT.

---

PREG20078751 On the constant pressure analysis chart, aircraft and satellite observations are used in the analysis over areas of sparse data. An aircraft observation is plotted using **B**

**OPCION A:** a station circle at the aircraft location.  
**OPCION B:** a square at the aircraft location.  
**OPCION C:** a star at the aircraft location.

---

PREG20078752 The prevailing visibility in the following METAR is **A**

METAR KFSM 131756Z AUTO 00000KT M1/4SM  
R25/0600V1000FT -RA FG VV004 06/05 A2989 RMK AO2 \$

**OPCION A:** less than 1/4 statute mile.  
**OPCION B:** measured 1/4 statute mile.  
**OPCION C:** a mean (average) of 1/4 statute mile.

---

PREG20078686 When advection fog has developed, what may tend to dissipate or lift the fog into low stratus clouds? **B**

**OPCION A:** Temperature inversion.  
**OPCION B:** Wind stronger than 15 knots.  
**OPCION C:** Surface radiation.

---

PREG20078747 On the constant pressure analysis chart, satellite and aircraft observations are used in the analysis over areas of sparse data. A satellite observation is plotted using **C**

**OPCION A:** a station circle at the cloud top location.  
**OPCION B:** a square at the cloud top location.  
**OPCION C:** a star at the cloud top location.

---

---

PREG20078720	Weather conditions expected to occur in the vicinity of the airport, but not at the airport, are denoted by the letters "VC". When VC appears in a Terminal Aerodrome Forecast, it covers a geographical area of	A
<b>OPCION A:</b>	a 5 to 10 statute mile radius from the airport.	
<b>OPCION B:</b>	a 5-mile radius of the center of a runway complex.	
<b>OPCION C:</b>	10 miles of the station originating the forecast.	

---

PREG20078738	Freezing Point Depressant (FPD) fluids used for deicing	B
<b>OPCION A:</b>	provide ice protection during flight.	
<b>OPCION B:</b>	are intended to provide ice protection on the ground only.	
<b>OPCION C:</b>	on the ground, cause no performance degradation during takeoff.	

---

PREG20078736	Which procedure increases holding time when deicing/anti-icing an airplane using a two-step process?	A
<b>OPCION A:</b>	Heated Type 1 fluid followed by cold Type 2 fluid.	
<b>OPCION B:</b>	Cold Type 2 fluid followed by hot Type 2 fluid.	
<b>OPCION C:</b>	Heated Type 1 or 2 fluid followed by cold Type 1 fluid.	

---

PREG20078722	What weather is predicted by the term VCTS in a Terminal Aerodrome Forecast?	A
<b>OPCION A:</b>	Thunderstorms are expected in the vicinity.	
<b>OPCION B:</b>	Thunderstorms may occur over the station and within 50 miles of the station.	
<b>OPCION C:</b>	Thunderstorms are expected between 5 and 25 miles of the runway complex.	

---

PREG20078723	What type turbulence should be reported when it causes in altitude and/or attitude more than two-thirds of the time, with the aircraft remaining in positive control at all times?	B
<b>OPCION A:</b>	Continuous severe chop.	
<b>OPCION B:</b>	Continuous moderate turbulence.	
<b>OPCION C:</b>	Intermittent moderate turbulence.	

---

PREG20078724	What type turbulence should be reported when it momentarily causes slight, erratic changes in altitude and/or attitude, one-third to two-thirds of the time?	C
<b>OPCION A:</b>	Occasional light chop.	
<b>OPCION B:</b>	Moderate chop.	
<b>OPCION C:</b>	Intermittent light turbulence.	

---

PREG20078725	Fig. 145 What was the local Central Standard Time of the Aviation Routine Weather Report at Austin (KAUS)?	A
<b>OPCION A:</b>	11:53 a.m.	
<b>OPCION B:</b>	5:53 p.m.	

---

**OPCION C:** 10:53 p.m.

---

PREG20078647 What temperature condition is indicated if precipitation in the form of wet snow occurs during flight? A

**OPCION A:** The temperature is above freezing at flight altitude.

**OPCION B:** The temperature is above freezing at higher altitudes.

**OPCION C:** There is an inversion with colder air below.

---

PREG20078633 Fig. 144 A  
What effect will a microburst encounter have upon the aircraft in position 4?

**OPCION A:** Strong tailwind.

**OPCION B:** Strong updraft.

**OPCION C:** Significant performance increase.

---

PREG20078632 Fig. 144 C  
What effect will a microburst encounter have upon the aircraft in position 3?

**OPCION A:** Decreasing headwind.

**OPCION B:** Increasing tailwind.

**OPCION C:** Strong downdraft.

---

PREG20078631 Ref. Figure 144 C  
When penetrating a microburst, which aircraft will experience an increase in performance without a change in pitch or power?

**OPCION A:** 3.

**OPCION B:** 2.

**OPCION C:** 1.

---

PREG20078630 Ref. Figure 144 C  
If involved in a microburst encounter, in which aircraft positions will the most severe downdraft occur?

**OPCION A:** 4 and 5.

**OPCION B:** 2 and 3.

**OPCION C:** 3 and 4.

---

PREG20078616 What is the expected duration of an individual microburst? C

**OPCION A:** Five minutes with maximum winds lasting approximately 2 to 4 minutes.

**OPCION B:** One microburst may continue for as long as an hour.

**OPCION C:** Seldom longer than 15 minutes from the time the burst strikes the ground until dissipation.

---

PREG20078617 Maximum downdrafts in a microburst encounter may be as strong as C

**OPCION A:** 1,500 ft/min.

---

**OPCION B:** 4,500 ft/min.  
**OPCION C:** 6,000 ft/min.

---

PREG20078618 An aircraft that encounters a headwind of 40 knots, within a microburst, may expect a total shear across the microburst of **B**

**OPCION A:** 40 knots.  
**OPCION B:** 80 knots.  
**OPCION C:** 90 knots.

---

PREG20078619 Which INITIAL cockpit indications should a pilot be aware of when a headwind shears to a calm wind? **C**

**OPCION A:** Indicated airspeed decreases, aircraft pitches up, and altitude decreases.  
**OPCION B:** Indicated airspeed increases, aircraft pitches down, and altitude increases.  
**OPCION C:** Indicated airspeed decreases, aircraft pitches down, and altitude decreases.

---

PREG20078620 Which condition would INITIALLY cause the indicated airspeed and pitch to increase and the sink rate to decrease? **C**

**OPCION A:** Sudden decrease in a headwind component.  
**OPCION B:** Tailwind which suddenly increases in velocity.  
**OPCION C:** Sudden increase in a headwind component.

---

PREG20078621 Which INITIAL cockpit indications should a pilot be aware of when a constant tailwind shears to a calm wind? **C**

**OPCION A:** Altitude increases; pitch and indicated airspeed decrease.  
**OPCION B:** Altitude, pitch, and indicated airspeed decrease.  
**OPCION C:** Altitude, pitch, and indicated airspeed increase.

---

PREG20078648 What term describes an elongated area of low pressure? **A**

**OPCION A:** Trough.  
**OPCION B:** Ridge.  
**OPCION C:** Hurricane or typhon.

---

PREG20078622 What is the recommended technique to counter the loss of airspeed and resultant lift from wind shear? **C**

**OPCION A:** Lower the pitch attitude and regain lost airspeed.  
**OPCION B:** Avoid overstressing the aircraft, "pitch to airspeed," and apply maximum power.  
**OPCION C:** Maintain, or increase, pitch attitude and accept the lower-than-normal airspeed indications.

---

PREG20078624 Which wind-shear condition results in an increase in airspeed? **C**

**OPCION A:** Increasing tailwind and decreasing headwind.

---

<b>OPCION B:</b>	Increasing tailwind and headwind.	
<b>OPCION C:</b>	Decreasing tailwind and increasing headwind.	

---

PREG20078625	Which is a definition of "severe wind shear"?	B
<b>OPCION A:</b>	Any rapid change of horizontal wind shear in excess of 25 knots; vertical shear excepted.	
<b>OPCION B:</b>	Any rapid change in wind direction or velocity which causes airspeed changes greater than 15 knots or vertical speed changes greater than 500 ft/min.	
<b>OPCION C:</b>	Any rapid change of airspeed greater than 20 knots which is sustained for more than 20 seconds or vertical speed changes in excess of 100 ft/min.	

---

PREG20078626	Which airplane performance characteristics should be recognized during takeoff when encountering a tailwind shear that increases in intensity?	A
<b>OPCION A:</b>	Loss of, or diminished, airspeed performance.	
<b>OPCION B:</b>	Decreased takeoff distance.	
<b>OPCION C:</b>	Increased climb performance immediately after takeoff.	

---

PREG20078627	Thrust is being managed to maintain desired indicated airspeed and the glide slope is being flown. Which characteristics should be observed when a tailwind shears to a constant headwind?	B
<b>OPCION A:</b>	PITCH ATTITUDE: Increases. VERTICAL SPEED: Increases. INDICATED AIRSPEED: Decreases, then increases to approach speed.	
<b>OPCION B:</b>	PITCH ATTITUDE: Increases. VERTICAL SPEED: Decreases. INDICATED AIRSPEED: Increases, then decreases.	
<b>OPCION C:</b>	PITCH ATTITUDE: Increases. VERTICAL SPEED: Increases. INDICATED AIRSPEED: Decreases, then increases to approach speed.	

---

PREG20078628	Maximum downdrafts in a microburst encounter may be as strong as	C
<b>OPCION A:</b>	8,000 ft/min.	
<b>OPCION B:</b>	7,000 ft/min.	
<b>OPCION C:</b>	6,000 ft/min.	

---

PREG20078629	An aircraft that encounters a headwind of 45 knots, within a microburst, may expect a total shear across the microburst of	C
<b>OPCION A:</b>	40 knots.	
<b>OPCION B:</b>	80 knots.	
<b>OPCION C:</b>	90 knots.	

---

PREG20078623	Which wind-shear condition results in a loss of airspeed?	B
<b>OPCION A:</b>	Decreasing headwind or tailwind.	
<b>OPCION B:</b>	Decreasing headwind and increasing tailwind.	

---

**OPCION C:** Increasing headwind and decreasing tailwind.

---

PREG20078649 What is an important characteristic of wind shear? C

**OPCION A:** It is primarily associated with the lateral vortices generated by thunderstorms.

**OPCION B:** It usually exists only in the vicinity of thunderstorms, but may be found near a strong temperature inversion.

**OPCION C:** It may be associated with either a wind shift or a windspeed gradient at any level in the atmosphere.

---

PREG20078642 At lower levels of the atmosphere, friction causes the wind to flow across isobars into a low because the friction A

**OPCION A:** decreases windspeed and Coriolis force.

**OPCION B:** decreases pressure gradient force.

**OPCION C:** creates air turbulence and raises atmospheric pressure.

---

PREG20078651 Where is a common location for an inversion? B

**OPCION A:** At the tropopause.

**OPCION B:** In the stratosphere.

**OPCION C:** At the base of cumulus clouds.

---

PREG20078670 Which type clouds are indicative of very strong turbulence? B

**OPCION A:** Nimbostratus.

**OPCION B:** Standing lenticular.

**OPCION C:** Cirrocumulus.

---

PREG20078671 What is a feature of a stationary front? C

**OPCION A:** The warm front surface moves about half the speed of the cold front surface.

**OPCION B:** Weather conditions are a combination of strong cold front and strong warm front weather.

**OPCION C:** Surface winds tend to flow parallel to the frontal zone.

---

PREG20078672 Which event usually occurs after an aircraft passes through a front into the colder air? C

**OPCION A:** Temperature/dewpoint spread decreases.

**OPCION B:** Wind direction shifts to the left.

**OPCION C:** Atmospheric pressure increases.

---

PREG20078673 What minimum thickness of cloud layer is indicated if precipitation is reported as light or greater intensity? A

**OPCION A:** 4,000 feet thick.

**OPCION B:** 2,000 feet thick.

---

**OPCION C:** A thickness which allows the cloud tops to be higher than the freezing level.

---

PREG20078674 Which condition produces weather on the lee side of a large lake? A

**OPCION A:** Warm air flowing over a colder lake may produce fog.

**OPCION B:** Cold air flowing over a warmer lake may produce advection fog.

**OPCION C:** Warm air flowing over a cool lake may produce rain showers.

---

PREG20078650 What information from the control tower is indicated by the following transmission? C

"SOUTH BOUNDARY WIND ONE SIX ZERO AT TWO FIVE,  
WEST BOUNDARY WIND TWO FOUR ZERO AT THREE FIVE".

**OPCION A:** A downburst is located at the center of the airport.

**OPCION B:** Wake turbulence exists on the west side of the active runway.

**OPCION C:** There is a possibility of wind shear over or near the airport.

---

PREG20078676 Which weather phenomenon signals the beginning of the mature stage of a thunderstorm? B

**OPCION A:** The appearance of an anvil top.

**OPCION B:** The start of rain at the surface.

**OPCION C:** Growth rate of the cloud is at its maximum.

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PREG20078677 During the life cycle of a thunderstorm, which stage is characterized predominately by downdrafts? B

**OPCION A:** Cumulus.

**OPCION B:** Dissipating.

**OPCION C:** Mature.

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PREG20078678 What feature is normally associated with the cumulus stage of a thunderstorm? C

**OPCION A:** Beginning of rain at the surface.

**OPCION B:** Frequent lightning.

**OPCION C:** Continuous updraft.

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PREG20078679 What is indicated by the term "embedded thunderstorms"? C

**OPCION A:** Severe thunderstorms are embedded in a squall line.

**OPCION B:** Thunderstorms are predicted to develop in a stable air mass.

**OPCION C:** Thunderstorms are obscured by other types of clouds.

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PREG20078680 Where do squall lines most often develop? B

**OPCION A:** In an occluded front.

**OPCION B:** Ahead of a cold front.

**OPCION C:** Behind a stationary front.

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PREG20078681	Where can the maximum hazard zone caused by wind shear associated with a thunderstorm be found?	C
<b>OPCION A:</b>	In front of the thunderstorm cell (anvil side) and on the southwest side of the cell.	
<b>OPCION B:</b>	Ahead of the roll cloud or gust front and directly under the anvil cloud.	
<b>OPCION C:</b>	On all sides and directly under the thunderstorm cell.	

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PREG20078682	Atmospheric pressure changes due to a thunderstorm will be at the lowest value	B
<b>OPCION A:</b>	during the downdraft and heavy rain showers.	
<b>OPCION B:</b>	when the thunderstorm is approaching.	
<b>OPCION C:</b>	immediately after the rain showers have stopped.	

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PREG20078669	Convective clouds which penetrate a stratus layer can produce which threat to instrument flight?	C
<b>OPCION A:</b>	Freezing rain.	
<b>OPCION B:</b>	Clear air turbulence.	
<b>OPCION C:</b>	Embedded thunderstorms.	

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PREG20078668	Which condition is present when a local parcel of air is stable?	A
<b>OPCION A:</b>	The parcel of air resists convection.	
<b>OPCION B:</b>	The parcel of air cannot be forced uphill.	
<b>OPCION C:</b>	As the parcel of air moves upward, its temperature becomes warmer than the surrounding air.	

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PREG20078675	How can the stability of the atmosphere be determined?	A
<b>OPCION A:</b>	Ambient temperature lapse rate.	
<b>OPCION B:</b>	Atmospheric pressure at various levels.	
<b>OPCION C:</b>	Surface temperature/dewpoint spread.	

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PREG20078666	Which process causes adiabatic cooling?	A
<b>OPCION A:</b>	Expansion of air as it raises.	
<b>OPCION B:</b>	Movement of air over a colder surface.	
<b>OPCION C:</b>	Release of latent heat during the vaporization process.	

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PREG20078667	When saturated air moves downhill, its temperature increases	B
<b>OPCION A:</b>	at a faster than dry air because of the release of latent heat.	
<b>OPCION B:</b>	at a slower rate than dry air because vaporization uses heat.	
<b>OPCION C:</b>	at a slower rate than dry air because condensation releases heat.	

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PREG20078652	What condition produces the most frequent type of ground- or surface-based temperature inversion?	C
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<b>OPCION A:</b>	The movement of colder air under warm air or the movement of warm air over cold air.	
<b>OPCION B:</b>	Widespread sinking of air within a thick layer aloft resulting in heating by compression.	
<b>OPCION C:</b>	Terrestrial radiation on a clear, relatively calm night.	

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PREG20078653	Which term applies when the temperature of the air changes by compression or expansion with no heat added or removed?	C
<b>OPCION A:</b>	Katabatic.	
<b>OPCION B:</b>	Advection.	
<b>OPCION C:</b>	Adiabatic.	

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PREG20078654	What is the approximate rate unsaturated air will cool flowing upslope?	A
<b>OPCION A:</b>	3° per 1,000 feet.	
<b>OPCION B:</b>	2° per 1,000 feet.	
<b>OPCION C:</b>	4° per 1,000 feet.	

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PREG20078656	At which location does Coriolis force have the least effect on wind direction?	C
<b>OPCION A:</b>	At the poles.	
<b>OPCION B:</b>	Middle latitudes (30° to 60°).	
<b>OPCION C:</b>	At the Equator.	

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PREG20078657	How does Coriolis force affect wind direction in the Southern Hemisphere?	A
<b>OPCION A:</b>	Causes clockwise rotation around a low.	
<b>OPCION B:</b>	Causes wind to flow out of a low toward a high.	
<b>OPCION C:</b>	Has exactly the same effect as in the Northern Hemisphere.	

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PREG20078658	Which weather condition is defined as an anticyclone?	B
<b>OPCION A:</b>	Calm.	
<b>OPCION B:</b>	High pressure area.	
<b>OPCION C:</b>	COL.	

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PREG20078655	Isobars on a surface weather chart represent lines of equal pressure	B
<b>OPCION A:</b>	at the surface	
<b>OPCION B:</b>	reduced to sea level	
<b>OPCION C:</b>	at a given atmospheric pressure altitude	

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PREG20078660	What condition is indicated when ice pellets are encountered during flight?	B
<b>OPCION A:</b>	Thunderstorms at higher levels.	
<b>OPCION B:</b>	Freezing rain at higher levels.	
<b>OPCION C:</b>	Snow at higher levels.	

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PREG20078659	Which conditions result in the formation of frost?	C
<b>OPCION A:</b>	The temperature of the collecting surface is at or below freezing and small droplets of moisture are falling.	
<b>OPCION B:</b>	Dew collects on the surface and then freezes because the surface temperature is lower than the air temperature.	
<b>OPCION C:</b>	Temperature of the collecting surface is below the dewpoint and the dewpoint is also below freezing.	

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PREG20078664	What is indicated about an air mass if the temperature remains unchanged or decreases slightly as altitude is increased?	C
<b>OPCION A:</b>	The air is unstable.	
<b>OPCION B:</b>	A temperature inversion exists.	
<b>OPCION C:</b>	The air is stable.	

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PREG20078663	What is a feature of supercooled water?	B
<b>OPCION A:</b>	The water drop sublimates to an ice particle upon impact.	
<b>OPCION B:</b>	The unstable water drop freezes upon striking an exposed object.	
<b>OPCION C:</b>	The temperature of the water drop remains at 0 °C until it impacts a part of the airframe, then clear ice accumulates.	

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PREG20078665	What weather condition occurs at the altitude where the dewpoint lapse rate and the dry adiabatic lapse rate converge?	A
<b>OPCION A:</b>	Cloud bases form.	
<b>OPCION B:</b>	Precipitation starts.	
<b>OPCION C:</b>	Stable air changes to unstable air.	

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PREG20078661	When will frost most likely form on aircraft surfaces?	A
<b>OPCION A:</b>	On clear nights with stable air and light winds.	
<b>OPCION B:</b>	On overcast nights with freezing drizzle precipitation.	
<b>OPCION C:</b>	On clear nights with convective action and a small temperature/dewpoint spread.	

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PREG20078706	Where is the normal location of the jetstream relative to surface lows and fronts?	A
<b>OPCION A:</b>	The jetstream is located north of the surface systems.	
<b>OPCION B:</b>	The jetstream is located south of the low and warm front.	
<b>OPCION C:</b>	The jetstream is located over the low and crosses both the warm front and the cold front.	

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PREG20078707	Which type frontal system is normally crossed by the jetstream?	C
<b>OPCION A:</b>	Cold front and warm front.	
<b>OPCION B:</b>	Warm front.	
<b>OPCION C:</b>	Occluded front.	

PREG20078708	Which type clouds may be associated with the jetstream?	B
<b>OPCION A:</b>	Cumulonimbus cloud line where the jetstream crosses the cold front.	
<b>OPCION B:</b>	Cirrus clouds on the equatorial side of the jetstream.	
<b>OPCION C:</b>	Cirrostratus cloud band on the polar side and under the jetstream.	
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PREG20078709	Which action is recommended if jetstream turbulence is encountered with a direct headwind or tailwind?	C
<b>OPCION A:</b>	Increase airspeed to get out of the area quickly.	
<b>OPCION B:</b>	Change occurs to fly on the polar side of the jetstream.	
<b>OPCION C:</b>	Change altitude or course to avoid a possible elongated area.	
<hr/>		
PREG20078705	What is the lowest cloud in the stationary group associated with a mountain wave?	A
<b>OPCION A:</b>	Rotor cloud.	
<b>OPCION B:</b>	Standing lenticular.	
<b>OPCION C:</b>	Low stratus.	
<hr/>		
PREG20078710	Which action is recommended regarding an altitude change to get out of jetstream turbulence?	A
<b>OPCION A:</b>	Descend if ambient temperature is falling.	
<b>OPCION B:</b>	Descend if ambient temperature is rising.	
<b>OPCION C:</b>	Maintain altitude if ambient temperature is not changing.	
<hr/>		
PREG20078726	Ref. Figure 145 The peak wind at KAMA was reported to be from 320° true at 39 knots.	A
<b>OPCION A:</b>	wich occurred at 1743Z	
<b>OPCION B:</b>	with gusts to 43 knots	
<b>OPCION C:</b>	with 43 of an inch liquid precipitation since the last report	
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PREG20078727	SPECI KGLS 131802Z 10012G21KT 060V140 2SM+SHRA SCT005BKN035 OVC050CB24/23 A2980 RMK RAB57 WS TKO RW09L WSHFT 58 FROPA.  This SPECI report at Galveston (KGLS) indicates which condition?	B
<b>OPCION A:</b>	Wind steady at 100° magnetic at 12 knots, gusts to 21.	
<b>OPCION B:</b>	Precipitation started at 57 after the hour.	
<b>OPCION C:</b>	5,000 feet overcast with towering cumulus.	
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PREG20078737	Which is an effect of ice, snow, or frost formation on an airplane?	A
<b>OPCION A:</b>	Increased stall speed	
<b>OPCION B:</b>	Increased pitchdown tendencies	
<b>OPCION C:</b>	Increased angle of attack for stalls	

PREG20078728 METAR KMAF 131756Z 02020KT 12SM BKN025 OVC250 27/18 A3009 RMK RAE44. A

Which weather condition is indicated by this METAR report at Midland (KMAF)?

- OPCION A:** Rain of unknown intensity ended 16 minutes before the hour.  
**OPCION B:** The ceiling was at 25,000 feet MSL.  
**OPCION C:** Wind was 020° magnetic at 20 knots.

PREG20078729 METAR KSPS 131757Z 09014KT 6SM -RA SCT025 OVC090 24/22 A3005. C  
 SPECI KSPS 131820Z 01025KT 3SM +RA FC OVC015 22/21 A3000.

Which change took place at Wichita Falls (KSPS) between 1757 and 1820 UTC?

- OPCION A:** The rain became lighter.  
**OPCION B:** Atmospheric pressure increased.  
**OPCION C:** A funnel cloud was observed.

PREG20078731 A PROB40 (PROBability) HHhh group in an International Terminal Aerodrome Forecast (TAF) indicates the probability of A

- OPCION A:** thunderstorms or other precipitation.  
**OPCION B:** precipitation or low visibility.  
**OPCION C:** thunderstorms or high wind.

PREG20078732 Fig. 147 At which time is IFR weather first predicted at Lubbock (KLBB)? A

- OPCION A:** 0100Z.  
**OPCION B:** 2100Z.  
**OPCION C:** 0400Z.

PREG20078733 Vertical wind shear can be determined by comparing winds on vertically adjacent constant pressure charts. The vertical wind shear that is critical for probability of turbulence is B

- OPCION A:** 4 knots or greater per 1,000 feet.  
**OPCION B:** 6 knots or more pre 1,000 feet  
**OPCION C:** greater than 8 knots per 1,000 feet

PREG20078662 What is the result when water vapor changes to the liquid state while being lifted in a thunderstorm? A

- OPCION A:** Latent heat is released to the atmosphere.  
**OPCION B:** Latent heat is transformed into pure energy.  
**OPCION C:** Latent heat is absorbed from the surrounding air by the water droplet.

