

THE ULTIMATE

REMOTE PILOT SOLUTIONS GUIDE

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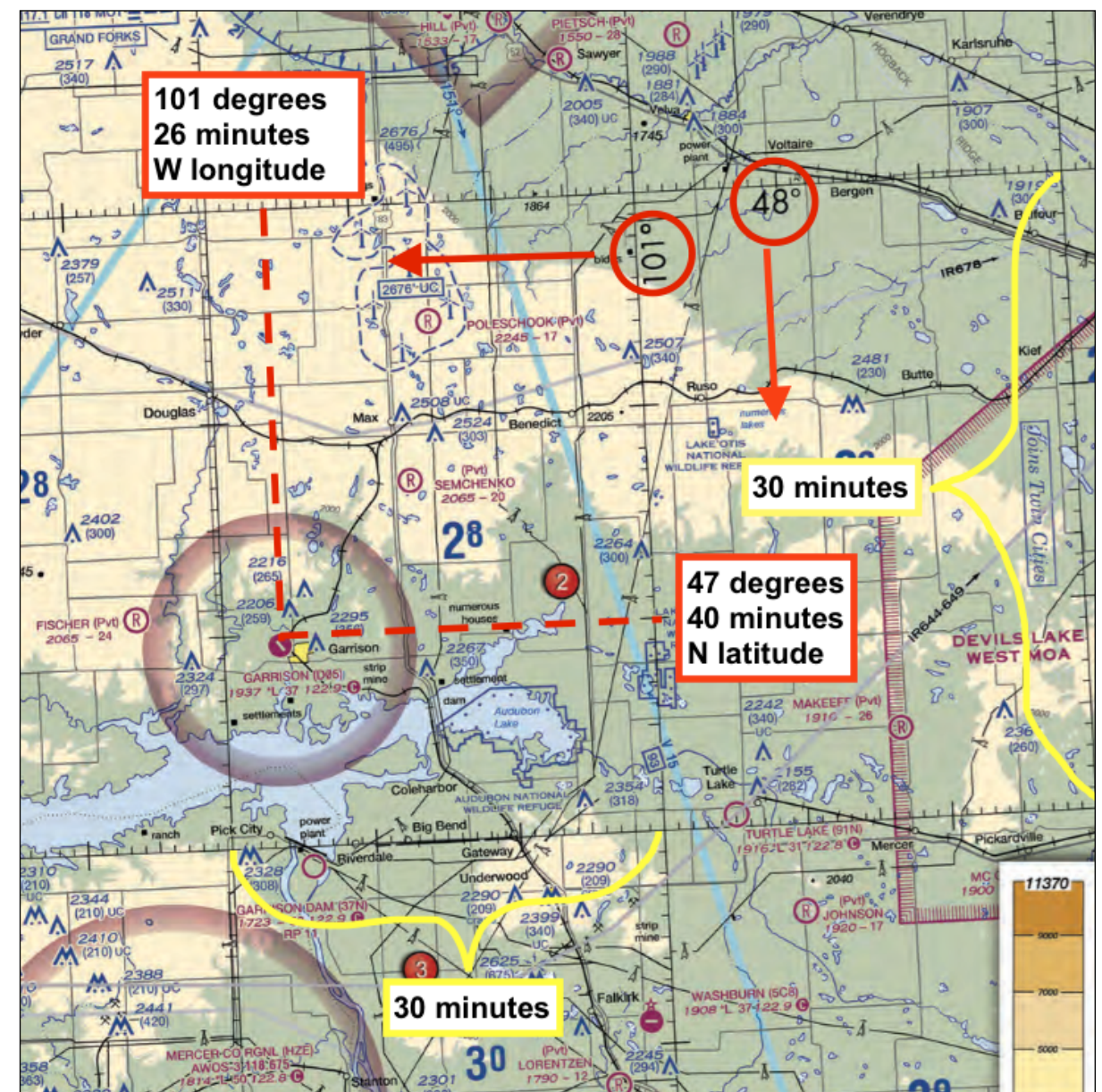
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(Refer to FAA-CT-8080-2G, Figure 21.)

- Answer: C. Garrison Airport**

For this case, the given values on the chart (101 degrees longitude and 48 degrees latitude) help us determine which airport has the given coordinates by counting tick marks from those lines.



2. What does the line of latitude at area 4 measure?

(Refer to FAA-CT-8080-2G, Figure 26.)

- A. The degrees of latitude east and west of the Prime Meridian.
- B. The degrees of latitude north and south from the equator.
- C. The degrees of latitude east and west of the line that passes through Greenwich, England.

Answer: B. The degrees of latitude north and south from the equator.

Solution: Latitude is the measure of degrees north and south of the equator.

The easiest way to remember the difference between latitude and longitude is by associating the terms with different parts of a ladder. Lines of latitude run east and west. To remember, think of the rungs of a ladder (which sounds somewhat similar to latitude) which run across, connecting the two longer pieces.

3. What is the floor of the Savannah Class C airspace at the shelf area (outer circle)? (Refer to FAA-CT-8080-2G, Figure 23, area 3.)

- A. 1,300 feet AGL.
B. 1,300 feet MSL.
C. 1,700 feet MSL.

Answer: B. 1,300 feet MSL.

Solution: The floor of the outer circle is 1,300 feet MSL. Most numbers on aeronautical charts are truncated to save space, so you have to add two zeros to get the right value: 13 = 1,300, 41 = 41,000, and so on.

MSL is 'mean sea level', while AGL is 'above ground level'.



4. The chart shows a gray line with "VR1667, VR1617, VR1638, and VR1668." Could this area present a hazard to the operations of a small UA?

(Refer to FAA-CT-8080-2G, Figure 59, area 2.)

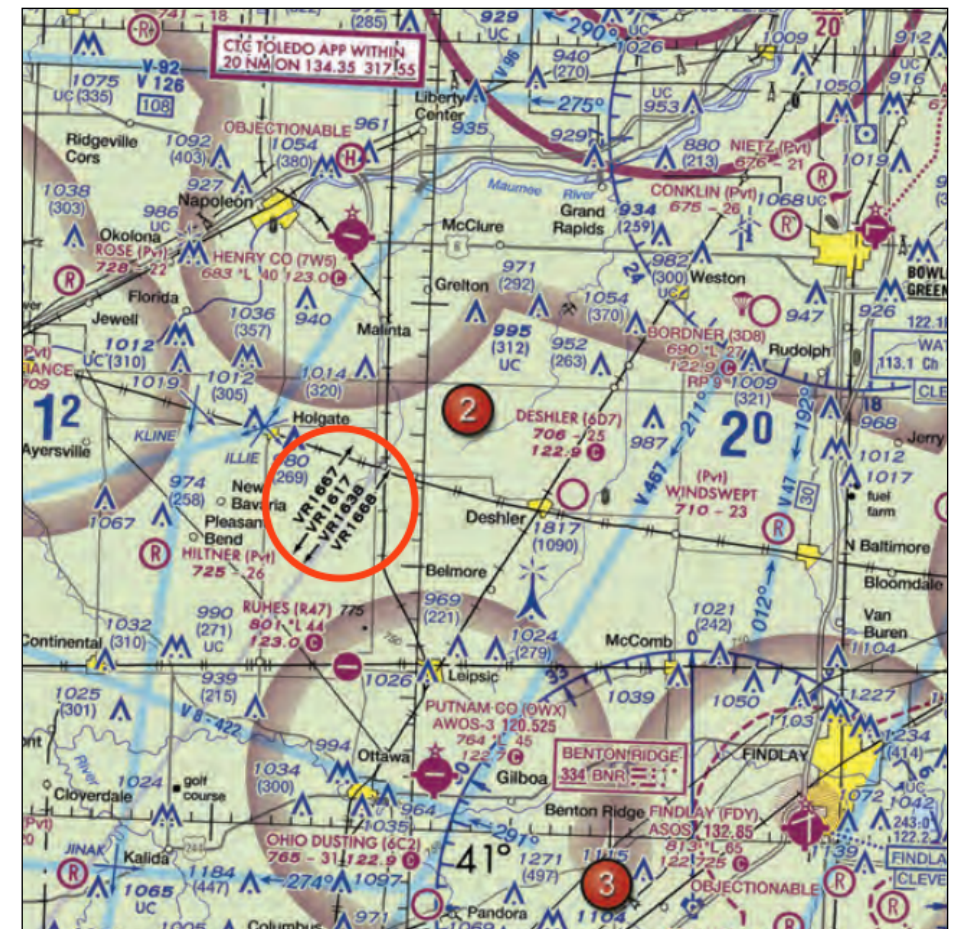
- A. No, all operations will be above 400 feet.
- B. Yes, this is a Military Training Route from the surface to 1,500 feet AGL.
- C. Yes, the defined route provides traffic separation to manned aircraft.

Answer: B. Yes, this is a Military Training Route from the surface to 1,500 feet AGL.

Solution: “Military Training Route (MTR) are routes used by the military to maintain proficiency in tactical flying. Routes are identified as IFR (IR), and VFR (VR), followed by a number. MTRs with no segment above 1,500 feet AGL are identified by four number characters (e.g., IR1206, VR1207).

MTRs with a segment above 1,500 feet AGL are identified by three number characters (e.g., IR206, VR207).”

([Remote Pilot Study Guide](#) - Chapter 2: Airspace Classification, Operating Requirements, and Flight Restrictions)



5. According to 14 CFR part 107 the remote pilot-in-command (PIC) of a small unmanned aircraft planning to operate within Class C airspace

- A. Must use a visual observer.
- B. Is required to file a flight plan.
- C. Is required to receive ATC authorization.

Answer: C. Is required to receive ATC authorization.

Solution: “Class C airspace is generally airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and have a certain number of instrument flight rules (IFR) operations or passenger enplanements.

Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a five nautical mile (NM) radius, an outer circle with a ten NM radius that extends from 1,200 feet to 4,000 feet above the airport elevation. A remote pilot must receive authorization before operating in Class C airspace.”

([Remote Pilot Study Guide](#) - Chapter 2: Airspace Classification, Operating Requirements, and Flight Restrictions)

6. You have been hired by a farmer to use your small UA to inspect his crops. The area that you are to survey is in the Devil's Lake West MOA, east of area 2. How would you find out if the MOA is active? (Refer to FAA-CT-8080-2G, Figure 21.)

- A. Refer to the legend for special use air space phone number.
- B. This information is available in the Small UAS database.
- C. In the Military Operations Directory.

Answer: A. Refer to the legend for special use air space phone number.

Solution: There is more information on the back of the sectional charts about the MOA, which includes the air space phone number.

Additionally, to see which MOA is active, check the NOTAMs. This can be done by calling 1-800-WX-BRIEF or by visiting <https://www.notams.faa.gov/dinsQueryWeb/>



7. How would a remote PIC "CHECK NOTAMS" as noted in the CAUTION box regarding the unmarked balloon? (Refer to FAA-CT-8080-2G, Figure 20, area.)

- A. By utilizing the B4UFLY mobile application.
- B. By contacting the FAA district office.
- C. By obtaining a briefing via an online source such as: 1800WXBrief.com.

Answer: C. By obtaining a briefing via an online source such as: [1800WXBrief.com](https://www.1800wxbrief.com)

Solution: “Notices to Airmen, or NOTAMs, are time-critical aeronautical information either temporary in nature or not sufficiently known in advance to permit publication on aeronautical charts or in other operational publications. The information receives immediate dissemination via the National Notice to Airmen (NOTAM) System.

NOTAMs contain current notices to airmen that are considered essential to the safety of flight, as well as supplemental data affecting other operational publications. There are many different reasons that NOTAMs are issued.



([Remote Pilot Study Guide](#) - Chapter 2: Airspace Classification, Operating Requirements, and Flight Restrictions)

8. To ensure that the unmanned aircraft center of gravity (CG) limits are not exceeded, follow the aircraft loading instructions specified in the

- A. Pilot's Operating Handbook or UAS Flight Manual.
- B. Aeronautical Information Manual (AIM).
- C. Aircraft Weight and Balance Handbook.

Answer: **A. Pilot's Operating Handbook or UAS Flight Manual.**

Solution: Determining the center of gravity is aircraft specific, and therefore would be found within the specific Pilot's Operating Handbook or UAS Flight Manual.

9. When operating an unmanned airplane, the remote pilot should consider that the load factor on the wings may be increased anytime

- A. the CG is shifted rearward to the aft CG limit.
- B. the airplane is subjected to maneuvers other than straight and level flight.
- C. the gross weight is reduced.

Answer: B. the airplane is subjected to maneuvers other than straight and level flight.

Solution: “In aerodynamics, the maximum load factor (at given bank angle) is a proportion between lift and weight and has a trigonometric relationship. T

he load factor is measured in Gs (acceleration of gravity), a unit of force equal to the force exerted by gravity on a body at rest and indicates the force to which a body is subjected when it is accelerated.

Any force applied to an aircraft to deflect its flight from a straight line produces a stress on its structure. The amount of this force is the load factor.”

([Remote Pilot Study Guide](#) - Chapter 4: Small Unmanned Aircraft Loading)

10. A stall occurs when the smooth airflow over the unmanned airplane's wing is disrupted, and the lift degenerates rapidly. This is caused when the wing

- A. exceeds the maximum speed.
- B. exceeds maximum allowable operating weight.
- C. exceeds its critical angle of attack.

Answer: C. exceeds its critical angle of attack.

Solution: “Any aircraft, within the limits of its structure, may be stalled at any airspeed. When a sufficiently high angle of attack (AOA) is imposed, the smooth flow of air over an airfoil breaks up and separates, producing an abrupt change of flight characteristics and a sudden loss of lift, which results in a stall.”

([Remote Pilot Study Guide](#) - Chapter 4: Small Unmanned Aircraft Loading)

11. If an unmanned airplane weighs 33 pounds, what approximate weight would the airplane structure be required to support during a 30° banked turn while maintaining altitude? (Refer to FAA-CT-8080-2G, Figure 2.)

- A. 34 pounds.
- B. 47 pounds.
- C. 38 pounds.

Answer: C. 38 pounds.

Solution: Taking the angle of the bank to be 30°, the load factor is 1.154.

The product of the airplane weight (33 pounds) and the load factor is 38 pounds

(33 pounds x 1.154 = 38.082 pounds).

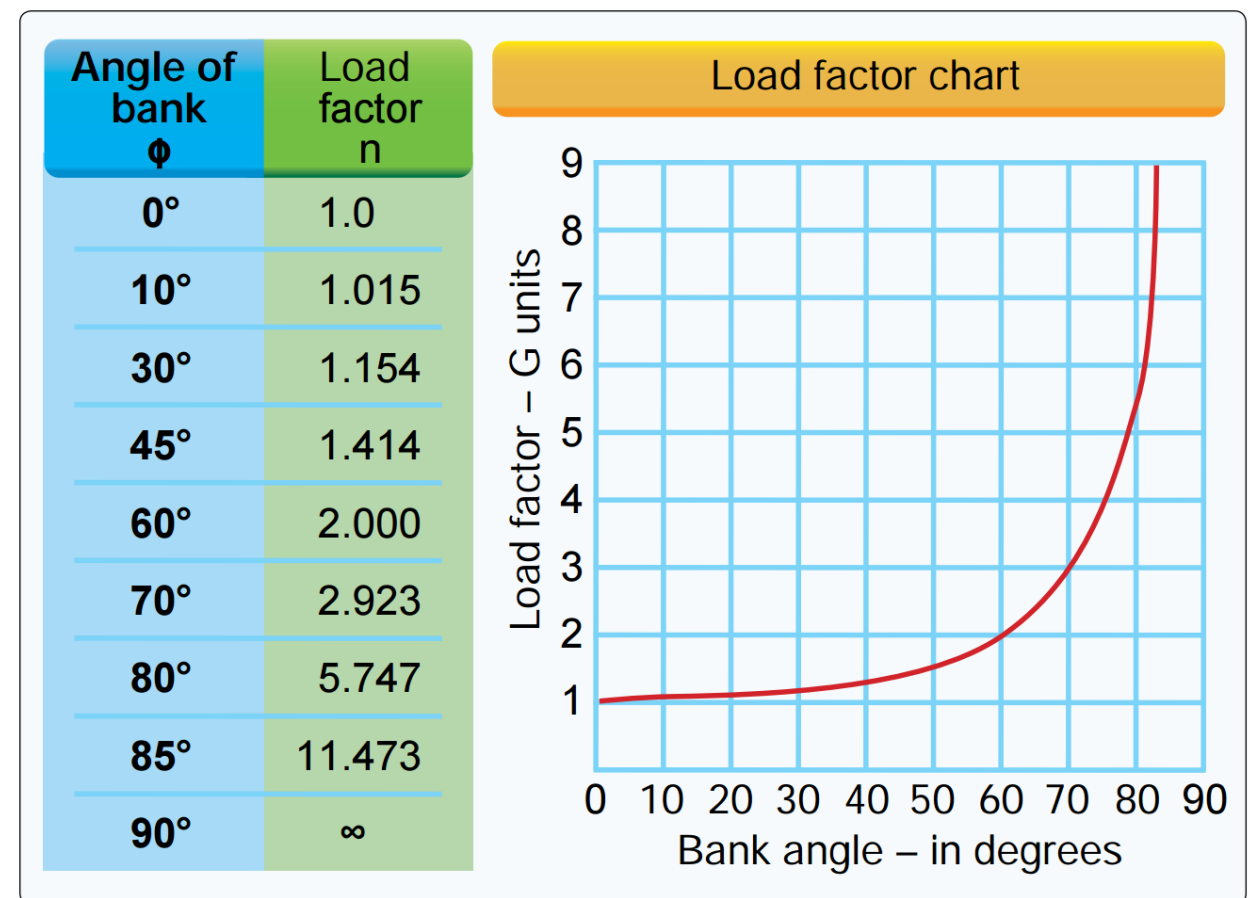


FIGURE 2.—Load Factor Chart.

12. Which is true regarding the presence of alcohol within the human body?

- A. A small amount of alcohol increases vision acuity.
- B. Consuming an equal amount of water will increase the destruction of alcohol and alleviate a hangover.
- C. Judgment and decision-making abilities can be adversely affected by even small amounts of alcohol.

Answer: C. Judgment and decision-making abilities can be adversely affected by even small amounts of alcohol.

Solution: Alcohol impairs the efficiency of the human body. Studies have shown that consuming alcohol is closely linked to performance deterioration.

13. When using a small UA in a commercial operation, who is responsible for briefing the participants about emergency procedures?

- A. The FAA inspector-in-charge.
- B. The lead visual observer.
- C. The remote PIC.

Answer: C. The remote PIC.

Solution: The easiest way to understand the role of the remote pilot-in-charge (PIC), is that they are responsible for everything in the operation.

14. To avoid a possible collision with a manned airplane, you estimate that your small UA climbed to an altitude greater than 600 feet AGL. To whom must you report the deviation?

- A. Air Traffic Control.
- B. The National Transportation Safety Board.
- C. Upon request of the Federal Aviation Administration.

Answer: C. Upon request of the Federal Aviation Administration.

Solution: 14 CFR 107.21 states, “(b) Each remote pilot in command who deviates from a rule under paragraph (a) of this section must, upon request of the Administrator, send a written report of that deviation to the Administrator.”

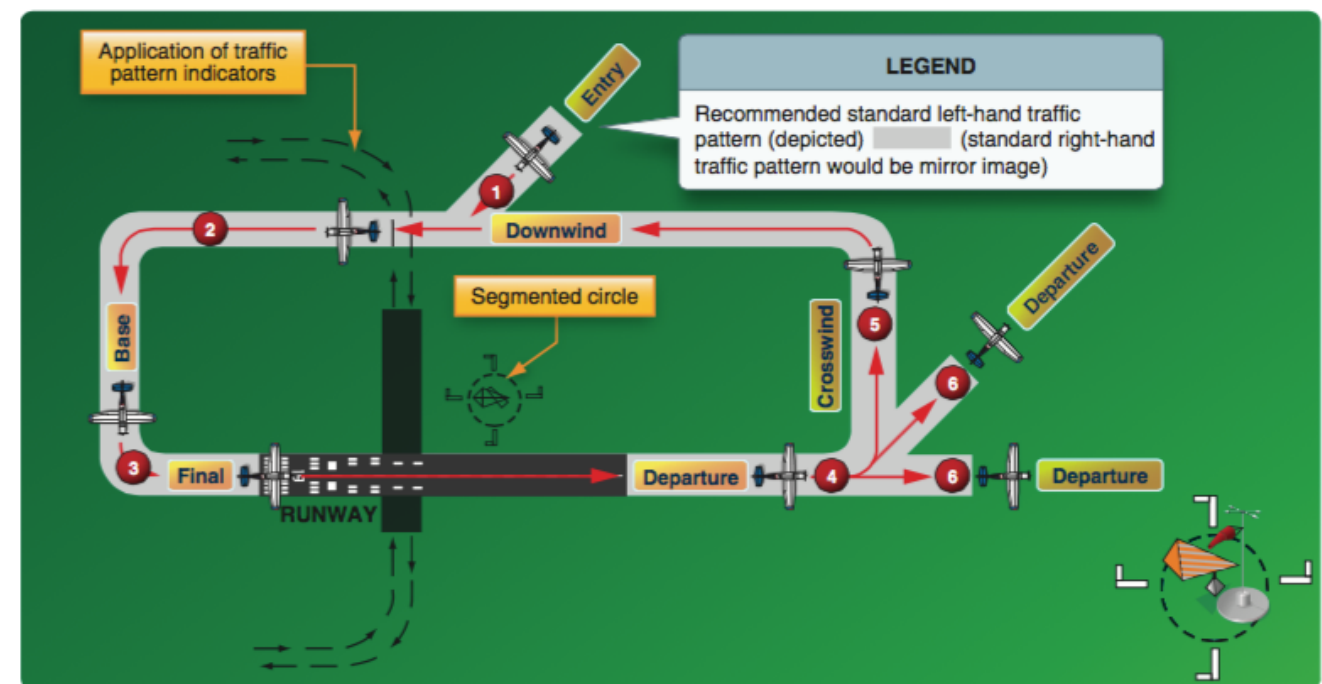
15. While monitoring the Cooperstown CTAF you hear an aircraft announce that they are midfield left downwind to RWY 13. Where would the aircraft be relative to the runway? (Refer to FAA-CT-8080-2G, Figure 26, area 2.)

- A. The aircraft is East.
- B. The aircraft is South.
- C. The aircraft is West.

Answer: A. The aircraft is East.

Solution: Solution: Air traffic should follow the standard left-hand traffic pattern.

In this case, the aircraft took off at a heading of 135 degrees, then turned crosswind to a heading of 045, and then to downwind on a heading 315 degrees. When the aircraft is midfield, it is East.



([Pilot's Handbook of Aeronautical Knowledge](#) - Chapter 14: Airport Operations)

16. Under what condition should the operator of a small UA establish scheduled maintenance protocol?

- A. When the manufacturer does not provide a maintenance schedule.
- B. UAS does not need a required maintenance schedule.
- C. When the FAA requires you to, following an accident.

Answer: A. When the manufacturer does not provide a maintenance schedule.

Solution: 14 CFR 107.15 requires the remote pilot-in-command to perform checks of the UA prior to each flight to determine if the sUAS is in a condition for safe operation.

While maintenance is not addressed in Part 107, Advisory circular 107-2 states, “Whenever possible the operator should maintain the sUAS [...] in accordance with the manufacturer’s instructions. If one is not provided the [remote pilot] may choose to develop one.”

17. According to 14 CFR part 107, the responsibility to inspect the small UAS to ensure it is in a safe operating condition rests with the:

- A. remote pilot-in-command.
- B. visual observer.
- C. owner of the small UAS.

Answer: A. remote pilot-in-command.

Solution: 14 CFR 107.15 requires the remote PIC to perform checks of the UA prior to each flight to determine if the sUAS is in a condition for safe operation.

18. Identify the hazardous attitude or characteristic a remote pilot displays while taking risks in order to impress others?

- A. Impulsivity.
- B. Invulnerability.
- C. Macho.

Answer: C. Macho.

Solution: “Being fit to fly depends on more than just a pilot’s physical condition and recent experience. For example, attitude affects the quality of decisions. Attitude is a motivational predisposition to respond to people, situations, or events in a given manner. Studies have identified five hazardous attitudes that can interfere with the ability to make sound decisions and exercise authority properly: anti-authority, impulsivity, invulnerability, macho, and resignation.”

Macho is the attitude of proving oneself and taking risks to impress others.

([Remote Pilot Study Guide](#) - Chapter 10: Aeronautical Decision-Making and Judgment)

19. You are a remote pilot for a co-op energy service provider. You are to use your UA to inspect power lines in a remote area 15 hours away from your home office. After the drive, fatigue impacts your abilities to complete your assignment on time. Fatigue can be recognized:

- A. easily by an experienced pilot.
- B. as being in an impaired state.
- C. by an ability to overcome sleep deprivation.

Answer: B. as being in an impaired state.

Solution: “Fatigue is frequently associated with pilot error. Some of the effects of fatigue include degradation of attention and concentration, impaired coordination, and decreased ability to communicate.

These factors seriously influence the ability to make effective decisions. Physical fatigue results from sleep loss, exercise, or physical work. Factors such as stress and prolonged performance of cognitive work result in mental fatigue.”

([Remote Pilot Study Guide](#) - Chapter 9: Physiological Factors (Including Drugs and Alcohol) Affecting Pilot Performance)

20. Safety is an important element for a remote pilot to consider prior to operating an unmanned aircraft system. To prevent the final "link" in the accident chain, a remote pilot must consider which methodology?

- A. Crew Resource Management.
- B. Safety Management System.
- C. Risk Management.

Answer: C. Risk Management.

Solution: Risk Management is the part of the decision making process which relies on situational awareness, problem recognition, and good judgment to reduce risks associated with each flight.

“Risk management and risk intervention is much more than the simple definitions of the terms might suggest. Risk management and risk intervention are decision-making processes designed to systematically identify hazards, assess the degree of risk, and determine the best course of action. These processes involve the identification of hazards, followed by assessments of the risks, analysis of the controls, making control decisions, using the controls, and monitoring the results.”

Crew Resource Management and Safety Management Systems are more about the systems, than the final “link”.

([Remote Pilot Study Guide](#) - Chapter 10: Aeronautical Decision-Making and Judgment)

21. When adapting crew resource management (CRM) concepts to the operation of a small UA, CRM must be integrated into

- A. the flight portion only.
- B. all phases of the operation.
- C. the communications only.

Answer: B. all phases of the operation.

Solution: “Crew resource management (CRM) training for flight crews is focused on the effective use of all available resources: human resources, hardware, and information supporting aeronautical decision (ADM) making to facilitate crew cooperation and improve decision-making. The goal of all flight crews is good ADM and the use of CRM is one way to make good decisions.”

([Remote Pilot Study Guide](#) - Chapter 10: Aeronautical Decision-Making and Judgment)

22. You have been hired as a remote pilot by a local TV news station to film breaking news with a small UA. You expressed a safety concern and the station manager has instructed you to “fly first, ask questions later.” What type of hazardous attitude does this attitude represent?

- A. Machismo.
- B. Invulnerability.
- C. Impulsivity.

Answer: C. Impulsivity.

Solution: “This is the attitude of people who frequently feel the need to do something, anything, immediately. They do not stop to think about what they are about to do, they do not select the best alternative, and they do the first thing that comes to mind. In this case, the station manager has an impulsive attitude.”

([Remote Pilot Study Guide](#) - Chapter 10: Aeronautical Decision-Making and Judgment)

The Five Hazardous Attitudes	Antidote
Anti-authority: “Don’t tell me.” This attitude is found in people who do not like anyone telling them what to do. In a sense, they are saying, “No one can tell me what to do.” They may be resentful of having someone tell them what to do or may regard rules, regulations, and procedures as silly or unnecessary. However, it is always your prerogative to question authority if you feel it is in error.	Follow the rules. They are usually right.
Impulsivity: “Do it quickly.” This is the attitude of people who frequently feel the need to do something, anything, immediately. They do not stop to think about what they are about to do, they do not select the best alternative, and they do the first thing that comes to mind.	Not so fast. Think first.
Invulnerability: “It won’t happen to me.” Many people falsely believe that accidents happen to others, but never to them. They know accidents can happen, and they know that anyone can be affected. However, they never really feel or believe that they will be personally involved. Pilots who think this way are more likely to take chances and increase risk.	It could happen to me.
Macho: “I can do it.” Pilots who are always trying to prove that they are better than anyone else think, “I can do it—I’ll show them.” Pilots with this type of attitude will try to prove themselves by taking risks in order to impress others. While this pattern is thought to be a male characteristic, women are equally susceptible.	Taking chances is foolish.
Resignation: “What’s the use?” Pilots who think, “What’s the use?” do not see themselves as being able to make a great deal of difference in what happens to them. When things go well, the pilot is apt to think that it is good luck. When things go badly, the pilot may feel that someone is out to get them or attribute it to bad luck. The pilot will leave the action to others, for better or worse. Sometimes, such pilots will even go along with unreasonable requests just to be a “nice guy.”	I’m not helpless. I can make a difference.

23. A local TV station has hired a remote pilot to operate their small UA to cover breaking news stories. The remote pilot has had multiple near misses with obstacles on the ground and two small UAS accidents. What would be a solution for the news station to improve their operating safety culture?

- A. The news station should implement a policy of no more than five crashes/incidents within 6 months.
- B. The news station does not need to make any changes; there are times that an accident is unavoidable.
- C. The news station should recognize hazardous attitudes and situations and develop standard operating procedures that emphasize safety.

Answer: C. The news station should recognize hazardous attitudes and situations and develop standard operating procedures that emphasize safety.

Solution: By implementing standard operating procedures (SOPs), the news station can treat the problem, not the symptoms. By following SOPs, it will allow the news station to improve their operating safety culture.

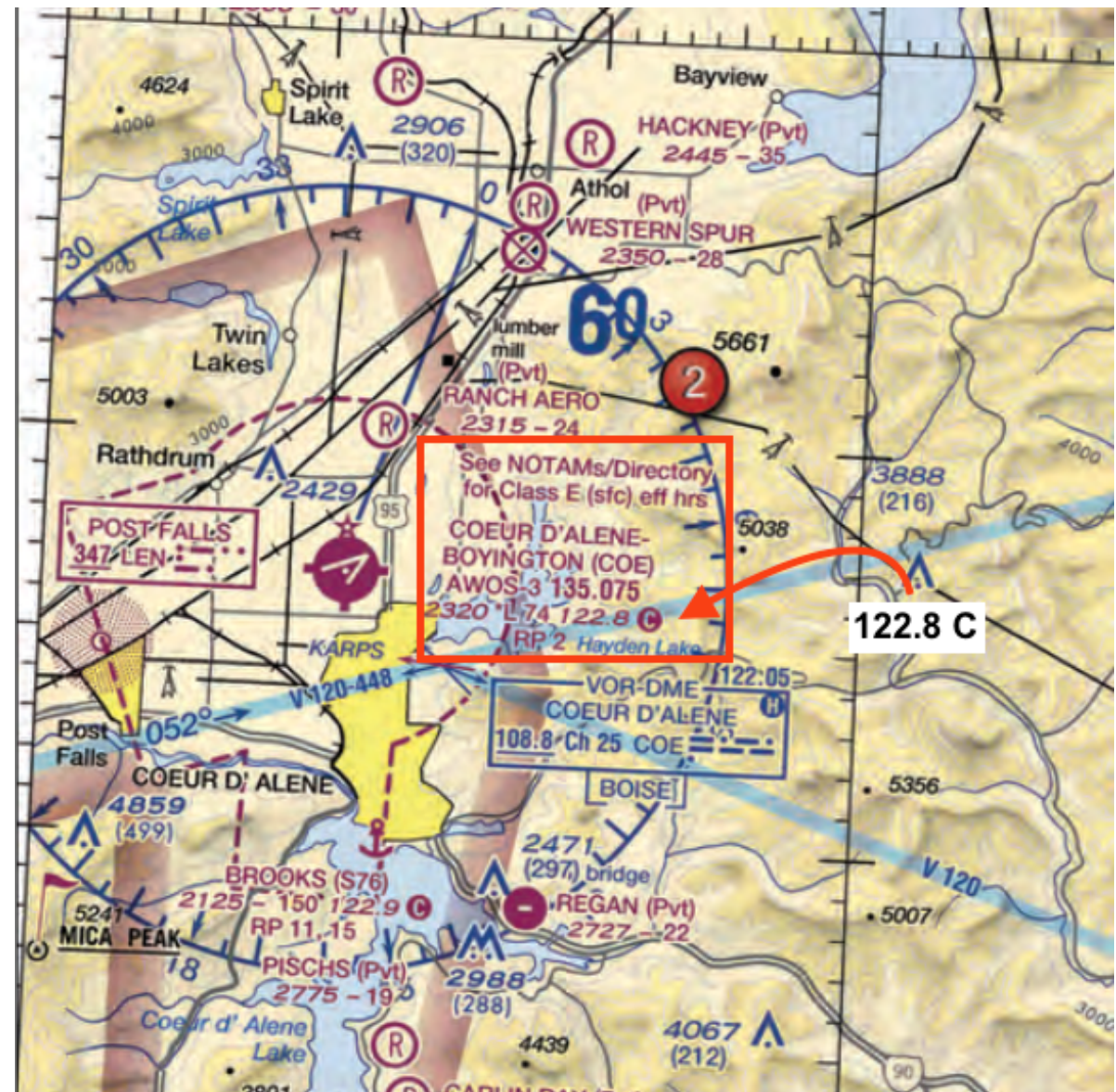
24. At Coeur D'Alene which frequency should be used as a Common Traffic Advisory Frequency (CTAF) to monitor airport traffic?

(Refer to FAA-CT-8080-2G, Figure 22, area 2.)

- A. 122.05 MHz.
- B. 135.075 MHz.
- C. 122.8 MHz.

Answer: C. 122.8 MHz.

Solution: Solution: The “C” next to the frequency indicates 122.8 MHz is CTAF.

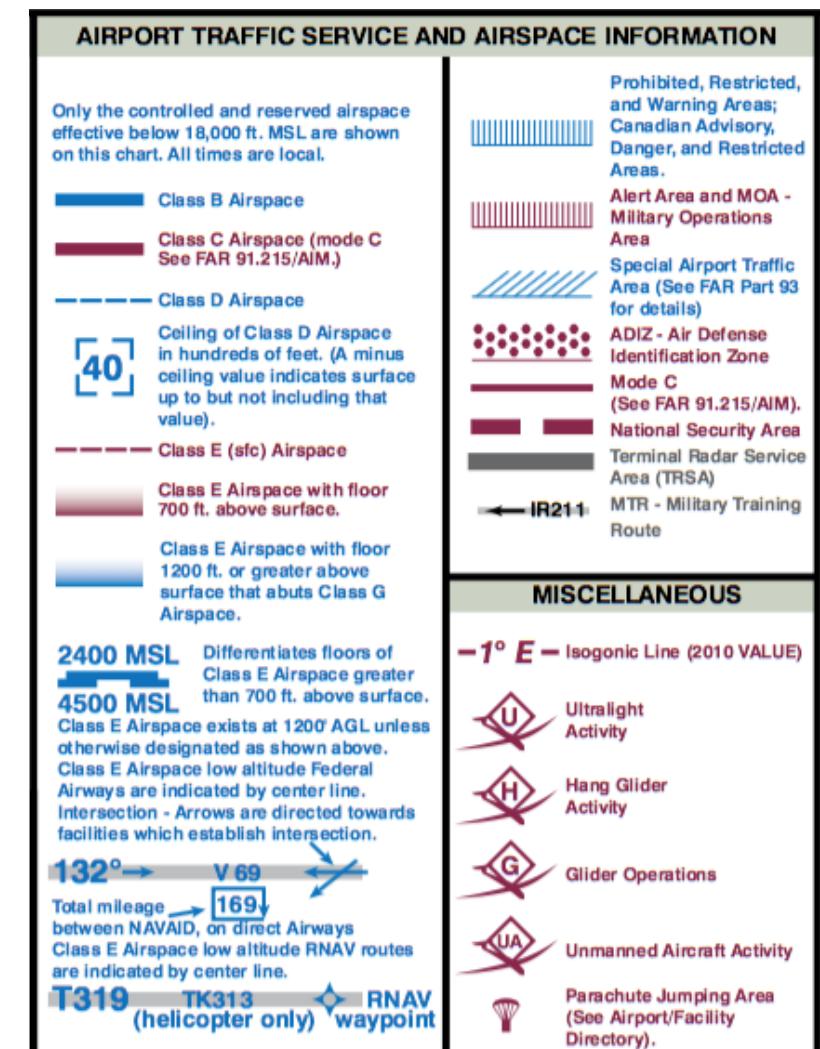
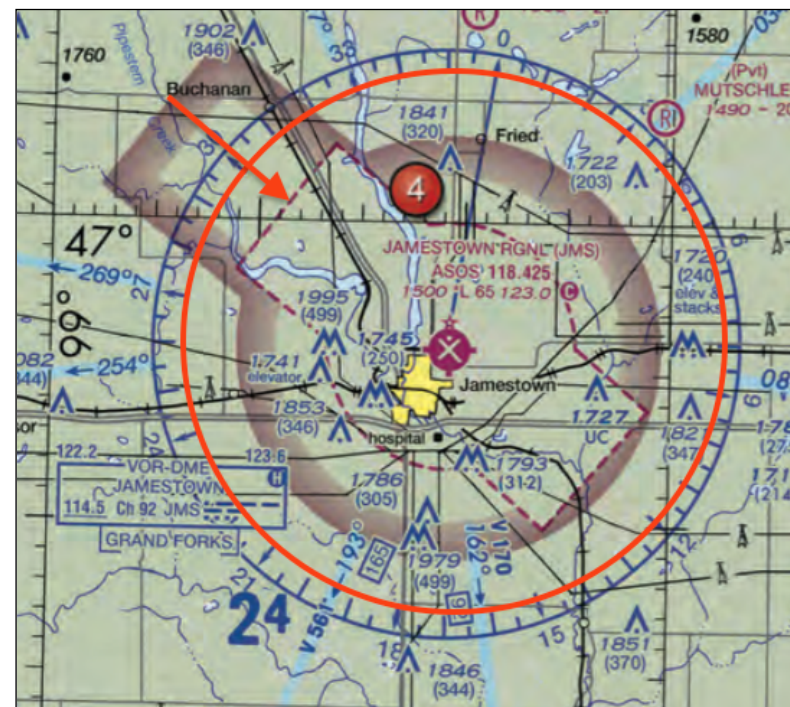


25. You have been hired to inspect the tower under construction at 46.9N and 98.6W, near Jamestown Regional (JMS). What must you receive prior to flying your unmanned aircraft in this area? (Refer to FAA-CT-8080-2G, Figure 26, area 4.)

- A. Authorization from the military.
- B. Authorization from ATC.
- C. Authorization from the National Park Service.

Answer: B. Authorization from ATC.

Solution: The dashed magenta line represents Class E Airspace, which will require ATC authorization.



([Remote Pilot Study Guide](#) - Chapter 2: Airspace Classification, Operating Requirements, and Flight Restrictions)
([The Airman Knowledge Testing Supplement](#) - Legend on Page 1)

26. With ATC authorization, you are operating your small unmanned aircraft approximately 4 SM southeast of Elizabeth City Regional Airport (ECG). What hazard is indicated to be in that area? (Refer to FAA-CT-8080-2G, Figure 20, area 3.)

- A. High density military operations in the vicinity.
- B. Unmarked balloon on a cable up to 3,008 feet AGL.
- C. Unmarked balloon on a cable up to 3,008 feet MSL.

Answer: C. Unmarked balloon on a cable up to 3,008 feet MSL.

Solution: Using the chart, the hazard about 4 statute miles southeast of Elizabeth City Regional Airport is an unmarked balloon on cable.



27. The most comprehensive information on a given airport is provided by

- A. the Chart Supplements U.S. (formerly Airport Facility Directory).
- B. Notices to Airmen (NOTAMS).
- C. Terminal Area Chart (TAC).

Answer: A. the Chart Supplements U.S. (formerly Airport Facility Directory).

Solution: “The Chart Supplement U.S. (formerly Airport/Facility Directory) provides the most comprehensive information on a given airport. It contains information on airports, heliports, and seaplane bases that are open to the public.

The Chart Supplement U.S. is also available digitally at:
www.faa.gov/air_traffic/flight_info/aeronav”

([Remote Pilot Study Guide](#) - Chapter 11: Airport Operations)

28. According to 14 CFR part 107, who is responsible for determining the performance of a small unmanned aircraft?

- A. Remote pilot-in-command.
- B. Manufacturer.
- C. Owner or operator.

Answer: A. Remote pilot-in-command.

Solution: “Before any flight, the remote pilot-in-command (PIC) should verify the aircraft is correctly loaded by determining the weight and balance condition of the aircraft. An aircraft’s weight and balance restrictions established by the manufacturer or the builder should be closely followed. Compliance with the manufacturer’s weight and balance limits is critical to flight safety. The remote PIC must consider the consequences of an overweight aircraft if an emergency condition arises.”

([Remote Pilot Study Guide](#) - Chapter 4: Small Unmanned Aircraft Loading)

Essentially, the remote pilot-in-command is the one responsible for the performance of the small unmanned aircraft.

29. Which technique should a remote pilot use to scan for traffic? A remote pilot should:

- A. systematically focus on different segments of the sky for short intervals.
- B. concentrate on relative movement detected in the peripheral vision area.
- C. continuously scan the sky from right to left.

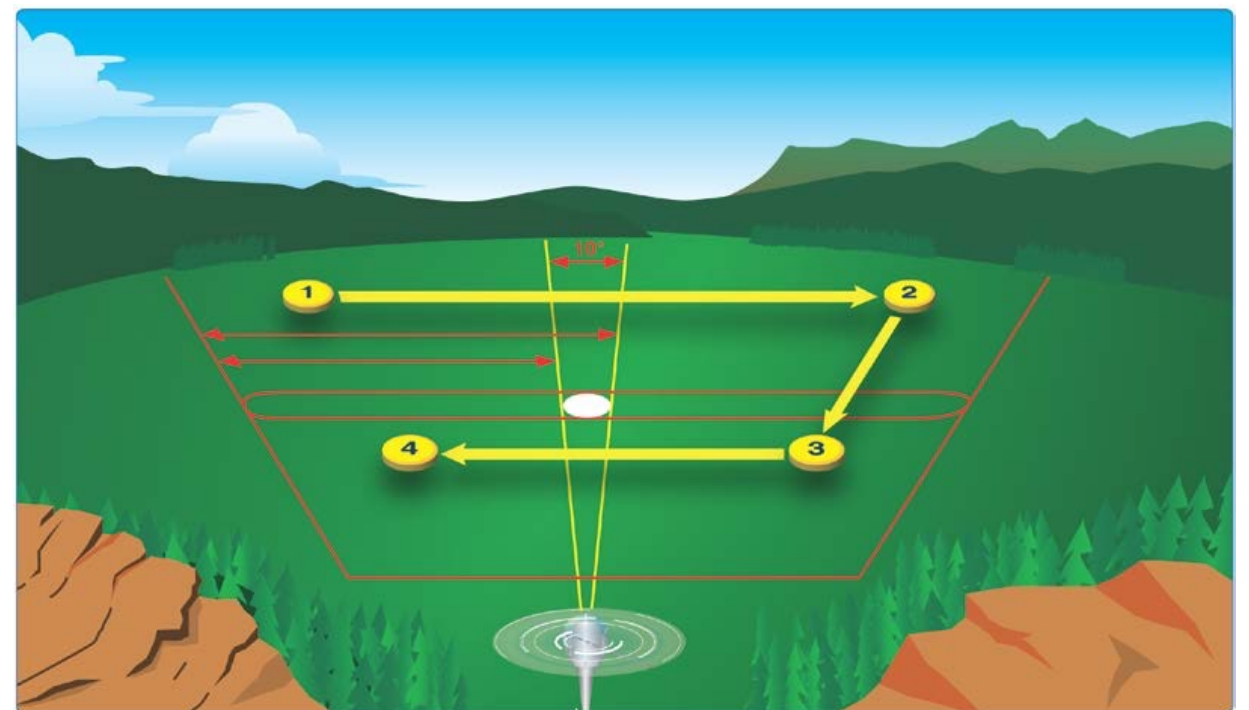
Answer: A. systematically focus on different segments of the sky for short intervals.

Solution: “To scan effectively, pilots must look from right to left or left to right. They should begin scanning at the greatest distance an object can be perceived (top) and move inward toward the position of the aircraft (bottom).

For each stop, an area approximately 30° wide should be scanned. The duration of each stop is based on the degree of detail that is required, but no stop should last longer than 2 to 3 seconds.

When moving from one viewing point to the next, pilots should overlap the previous field of view by 10° .”

([Remote Pilot Study Guide](#) - Chapter 9: Physiological Factors (Including Drugs and Alcohol) Affecting Pilot Performance)



30. Under what condition would a small UA not have to be registered before it is operated in the United States?

- A. When the aircraft weighs less than .55 pounds on takeoff, including everything that is on-board or attached to the aircraft.
- B. When the aircraft has a takeoff weight that is more than .55 pounds, but less than 55 pounds, not including fuel and necessary attachments.
- C. All small UAS need to be registered regardless of the weight of the aircraft before, during, or after the flight.

Answer: A. When the aircraft weighs less than .55 pounds on takeoff, including everything that is on-board or attached to the aircraft.

Solution: 14 CFR 48.15 requires all small UAS weighing more than .55 pounds (gross takeoff weight) to be registered with the FAA.

31. According to 14 CFR part 48, when must a person register a small UA with the Federal Aviation Administration?

- A. All civilian small UAs weighing greater than .55 pounds must be registered regardless of its intended use.
- B. When the small UA is used for any purpose other than as a model aircraft.
- C. Only when the operator will be paid for commercial services.

Answer: A. All civilian small UAs weighing greater than .55 pounds must be registered regardless of its intended use.

Solution: 14 CFR 48.15 requires all small UAS weighing more than .55 pounds (gross takeoff weight) to be registered with the FAA prior to operation.

32. According to 14 CFR part 48, when would a small UA owner not be permitted to register it?

- A. The owner is less than 13 years of age.
- B. All persons must register their small UA.
- C. If the owner does not have a valid United States driver's license.

Answer: A. The owner is less than 13 years of age.

Solution: 14 CFR 48.25 requires all “small unmanned aircraft must be registered by its owner using the legal name of its owner, unless the owner is less than 13 years of age. If the owner is less than 13 years of age, then the small unmanned aircraft must be registered by a person who is at least 13 years of age.”

33. According to 14 CFR part 107, how may a remote pilot operate an unmanned aircraft in class C airspace?

- A. The remote pilot must have prior authorization from the Air Traffic Control (ATC) facility having jurisdiction over that airspace.
- B. The remote pilot must monitor the Air Traffic Control (ATC) frequency from launch to recovery.
- C. The remote pilot must contact the Air Traffic Control (ATC) facility after launching the unmanned aircraft.

Answer: A. The remote pilot must have prior authorization from the Air Traffic Control (ATC) facility having jurisdiction over that airspace.

Solution: 14 CFR 107.41 states “No person may operate a small unmanned aircraft in Class B, Class C, or Class D airspace or within the lateral boundaries of the surface area of Class E airspace designated for an airport unless that person has prior authorization from Air Traffic Control (ATC).”

34. According to 14 CFR part 107, what is required to operate a small UA within 30 minutes after official sunset?

- A. Use of anti-collision lights.
- B. Must be operated in a rural area.
- C. Use of a transponder.

Answer: A. Use of anti-collision lights.

Solution: Civil twilight is defined as a period of time that begins 30 minutes before official sunrise and ends at official sunrise (except Alaska).

14 CFR 107.29 states “(b) No person may operate a small unmanned aircraft system during periods of civil twilight unless the small unmanned aircraft has lighted anti-collision lighting visible for at least 3 statute miles. The remote pilot in command may reduce the intensity of the anti-collision lighting if he or she determines that, because of operating conditions, it would be in the interest of safety to do so.”

35. You have received an outlook briefing from flight service through 1800wxbrief.com. The briefing indicates you can expect a low-level temperature inversion with high relative humidity. What weather conditions would you expect?

- A. Smooth air, poor visibility, fog, haze, or low clouds.
- B. Light wind shear, poor visibility, haze, and light rain.
- C. Turbulent air, poor visibility, fog, low stratus type clouds, and showery precipitation.

Answer: A. Smooth air, poor visibility, fog, haze, or low clouds.

Solution: “Inversion layers are commonly shallow layers of smooth, stable air close to the ground. The temperature of the air increases with altitude to a certain point, which is the top of the inversion. The air at the top of the layer acts as a lid, keeping weather and pollutants trapped below. If the relative humidity of the air is high, it can contribute to the formation of clouds, fog, haze, or smoke resulting in diminished visibility in the inversion layer.”

([Remote Pilot Study Guide](#) - Chapter 3b: Effects of Weather on Small Unmanned Aircraft Performance)

36. What effect does high density altitude have on the efficiency of a UA propeller?

- A. Propeller efficiency is increased.
- B. Propeller efficiency is decreased.
- C. Density altitude does not affect propeller efficiency.

Answer: B. Propeller efficiency is decreased.

Solution: “As the density of the air increases (lower density altitude), aircraft performance increases. Conversely, as air density decreases (higher density altitude), aircraft performance decreases. A decrease in air density means a high density altitude; an increase in air density means a lower density altitude. Density altitude has a direct effect on aircraft performance.”

([Remote Pilot Study Guide](#) - Chapter 3b: Effects of Weather on Small Unmanned Aircraft Performance)

Air density is directly proportional to propeller efficiency, and is inversely proportional to density altitude.

37. What are characteristics of a moist, unstable air mass?

- A. Turbulence and showery precipitation.
- B. Poor visibility and smooth air.
- C. Haze and smoke.

Answer: A. Turbulence and showery precipitation.

Solution: From the Remote Pilot Study Guide:

([Remote Pilot Study Guide](#) - Chapter 3b: Effects of Weather on Small Unmanned Aircraft Performance)

Stability

Stability of an air mass determines its typical weather characteristics. When one type of air mass overlies another, conditions change with height. Characteristics typical of an unstable and a stable air mass are as follows:

Unstable Air	Stable Air
Cumuliform clouds	Stratiform clouds and fog
Showery precipitation	Continuous precipitation
Rough air (turbulence)	Smooth air
Good visibility (except in blowing obstructions)	Fair to poor visibility in haze and smoke

38. What are the characteristics of stable air?

- A. Good visibility and steady precipitation.
- B. Poor visibility and steady precipitation.
- C. Poor visibility and intermittent precipitation.

Answer: B. Poor visibility and steady precipitation.

Solution: From the Remote Pilot Study Guide:

([Remote Pilot Study Guide](#) - Chapter 3b: Effects of Weather on Small Unmanned Aircraft Performance)

Stability

Stability of an air mass determines its typical weather characteristics. When one type of air mass overlies another, conditions change with height. Characteristics typical of an unstable and a stable air mass are as follows:

Unstable Air	Stable Air
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Good visibility (except in blowing obstructions)	Fair to poor visibility in haze and smoke

39. The wind direction and velocity at KJFK is from:

(Refer to FAA-CT-8080-2G, Figure 12.)

- A. 180° true at 4 knots.
- B. 180° magnetic at 4 knots.
- C. 040° true at 18 knots.

Answer: A. 180° true at 4 knots.

METAR	KINK	121845Z	11012G18KT	15SM	SKC	25/17	A3000
METAR	KBOI	121854Z	13004KT	30SM	SCT150	17/6	A3015
METAR	KLAX	121852Z	25004KT	6SM	BR	SCT007 SCT250	16/15 A2991
SPECI	KMDW	121856Z	32005KT	1	1/2SM	RA	OVC007 17/16 A2980 RMK RAB35
SPECI	KJFK	121853Z	18004KT	1/2SM	FG	R04/2200	OVC005 20/18 A3006

FIGURE 12.—Aviation Routine Weather Reports (METAR).

Solution: For the METAR, “wind is reported with five digits (14021KT) unless the speed is greater than 99 knots, in which case the wind is reported with six digits. The first three digits indicate the direction the true wind is blowing from in tens of degrees. If the wind is variable, it is reported as “VRB.” The last two digits indicate the speed of the wind in knots unless the wind is greater than 99 knots, in which case it is indicated by three digits. If the winds are gusting, the letter “G” follows the wind speed (G26KT). After the letter “G,” the peak gust recorded is provided. If the wind direction varies more than 60° and the wind speed is greater than six knots, a separate group of numbers, separated by a “V,” will indicate the extremes of the wind directions.”

([Remote Pilot Study Guide](#) - Chapter 3a: Aviation Weather Sources)

The wind direction is always reported as “true”.

40. What are the current conditions for Chicago Midway Airport (KMDW)?

(Refer to FAA-CT-8080-2G, Figure 12.)

- A. Sky 700 feet overcast, visibility 1-1/2 SM, rain.
- B. Sky 7000 feet overcast, visibility 1-1/2SM, heavy rain.
- C. Sky 700 feet overcast, visibility 11, occasionally 2SM, with rain.

Answer: A. Sky 700 feet overcast, visibility 1-1/2 SM, rain.

METAR KINK 121845Z 11012G18KT 15SM SKC 25/17 A3000
METAR KBOI 121854Z 13004KT 30SM SCT150 17/6 A3015
METAR KLAX 121852Z 25004KT 6SM BR SCT007 SCT250 16/15 A2991
SPECI KMDW 121856Z 32005KT 1 1/2SM RA OVC007 17/16 A2980 RMK RAB35
SPECI KJFK 121853Z 18004KT 1/2SM FG R04/2200 OVC005 20/18 A3006

FIGURE 12.—Aviation Routine Weather Reports (METAR).

Solution: 1 1/2SM = 1-1/2 SM (statute miles)

RA = rain

OVC007 = overcast skies at 700 feet (the heights of the cloud bases are reported with a three-digit number in hundreds of feet AGL, with two zeros knocked off the end)

([Remote Pilot Study Guide](#) - Chapter 3a: Aviation Weather Sources)

What's Next?

Now that you have a good idea of where your knowledge blind-spots are, I recommend two resources to use to prepare for the exam.

#1: Study Handbook: Charts, Airspace and Weather

In this [study handbook](#), you will receive the help you need to conquer the longest and most difficult sections of the Remote Pilot Knowledge Test: sectional charts, airspace, and weather.

#2: Drone Pilot Academy

Our [flagship course](#) walks you through every section of the Remote Pilot Knowledge Test, giving you the knowledge and confidence needed to pass. Our course includes in-depth videos, practice questions (with solutions), and quick study cheat sheets.



Dustin Gaessner
Founder, [Drone Tribe](#)

“We put together these other resources to help you receive your Remote Pilot Certificate from the FAA”