62

PILOT CAREER SOLUTIONS · FREE · BEFORE YOUR FIRST SOLO

The Pre-solo Test, *studied.*

Before you fly alone, the regulation says your instructor gives you a knowledge test on the rules, your airport and your airplane, and goes over every answer you miss. These are the questions, with the answers and the reasons, so the test is a conversation about things you already know.

How to use it

- Read the answer and the why after each question; the reference tells you where the rule lives. Then read the rule itself: the eCFR is free, and so is the AIM.
- Fill the airport page with your instructor. The real test asks about your airport, and no book can answer that for you.
- Part D is the Cessna 172N. If you fly another airplane, fill its page from the POH; the numbers you must know cold are the same kind.
- Run the same 62 questions online at pilotcareersolutions.com/practice, in any order, with the why after each.
- Then ask your instructor for the test. The wrong answers are not a failure; the review of them is the regulation working as intended.

This guide is free, like the syllabus it belongs with.

Scan for your own copy, the practice page, the syllabus (Lesson C1 is this test) and the instructor's packet.
pilotcareersolutions.com/free

NOVEMBER 2026 EDITION · FREE · PILOTCAREERSOLUTIONS.COM/PRACTICE/
BY AN ACTIVE LEGACY-AIRLINE CAPTAIN, AIRLINE TRANSPORT PILOT, CFI/CFII
NOT FLIGHT INSTRUCTION

Pilot Career Solutions teaches in ground and simulator settings only, never in a real aircraft.

WHAT THE TEST IS · 14 CFR 61.87(b)

The regulation, and the four parts

THE REGULATION

14 CFR 61.87(b): a student pilot must demonstrate satisfactory aeronautical knowledge on a knowledge test that addresses (i) the applicable sections of Parts 61 and 91, (ii) airspace rules and procedures for the airport where the solo flight will be performed, and (iii) flight characteristics and operational limitations for the make and model of aircraft to be flown. The student's authorized instructor must administer the test and, at its conclusion, review all incorrect answers with the student before authorizing that student to conduct a solo flight.

A

Part 61: the student pilot's own rules

What you may and may not do as a student pilot: passengers, visibility, visual reference to the surface, the endorsement and its limitations, the 90 days, the medical, the documents, how you log it.

B

Part 91: the flight rules

The flight rules that apply to every solo: preflight action, right-of-way, altitudes, speeds, fuel, weather minimums, what must be aboard, inoperative equipment, the light signals.

C

Airspace, the airport and the pattern

Airspace classes and what each one asks of you, the traffic pattern, self-announcing, wake turbulence, LAHSO, signs and markings, the PAPI, the transponder codes; then eight questions about your own airport, from the worksheet.

D

The airplane: the Cessna 172N

The airplane's limits and emergency speeds from the POH: V-speeds, weights, fuel, flaps, the crosswind number, engine failure after takeoff and in flight, oil limits, where the limits legally come from.

CAPTAIN'S TAKE

Your instructor may give the test open-book, closed-book, or as a conversation; the regulation sets the subjects, not the format. The eight local questions are the ones you cannot study from a book, so fill the airport page with your instructor before you sit it. And the day you solo, bring your certificate, your photo ID, your medical and your logbook with the endorsement; the regulation names the first three, and the fourth is where the endorsement lives.

The regulations in this guide were checked on the eCFR and the AIM paragraphs on faa.gov on October 18, 2026 (14 CFR 91.151 on November 7, 2026), and every 172N number in the 1978 POH (Sections 1 to 5) on November 3, 2026. The regulations are the authority; if one has changed since, the eCFR is right and this page is wrong, and we would like to hear about it at hello@pilotcareersolutions.com.

THE 62 QUESTIONS, ANSWERED · THE SAME ONES YOUR INSTRUCTOR GIVES

The questions, with the answers and the why

Part A · Part 61: the student pilot's own rules

1 **Before your first solo, the regulation requires a knowledge test. Who gives it, and what happens to the questions you miss?**

- ■ **A. Your instructor gives it and reviews every wrong answer with you before the solo**
- B. You take it online at home and keep the printed score report in your logbook
- C. A designated pilot examiner gives it and sends the score to the FAA before the solo

61.87(b)(2): the student's authorized instructor must administer the test and, at its conclusion, review all incorrect answers with the student before authorizing solo flight. That review is the point of the corrections page at the back of this test.
Source: 14 CFR 61.87(b)

2 **The pre-solo knowledge test must cover three things. Which list is the regulation's?**

- A. Weather theory, aerodynamics, navigation, radio procedures and aeromedical factors
- ■ **B. Parts 61 and 91; your solo airport's airspace and procedures; your airplane's limits**
- C. The Private Pilot ACS areas of operation, in the order the examiner will test them

61.87(b)(1)(i) to (iii). That is why Part C of this test has a local-airport worksheet and Part D is about one make and model: the regulation asks about your airport and your airplane, not airplanes in general.
Source: 14 CFR 61.87(b)(1)

3 **What must be in your logbook before you fly solo?**

- A. Nothing; a logbook endorsement is not required until the solo cross-country stage
- B. A letter of authorization from the school's chief flight instructor, renewed each month
- ■ **C. A make-and-model solo endorsement from an instructor who trained you in the last 90 days**

61.87(n): a student may not fly solo without an endorsement in the logbook for the specific make and model, from an authorized instructor who gave the training within the 90 days preceding the flight. The sample wording is AC 61-65K, Appendix A, A.6.
Source: 14 CFR 61.87(n); AC 61-65K Appendix A

4 **Your solo endorsement is dated today. For how long does it keep you legal to fly solo in that make and model?**

- ■ **A. 90 days; an instructor must update it every 90 days after that**
- B. Until your training ends, as long as you keep flying regularly
- C. 30 days, then the instructor must re-fly the pre-solo maneuvers with you

61.87(p): the endorsement must be updated every 90 days. AC 61-65K A.6 is the first 90-day endorsement and A.7 each additional 90-day period.
Source: 14 CFR 61.87(p)

5 **Your friend asks to ride along on your first solo. May a student pilot carry a passenger?**

A. Yes, after the second solo and a check of the weight and balance

■ **B. No; a student pilot may not carry a passenger**

C. Yes, one passenger, if the instructor signs an approval

61.89(a)(1). "Solo" in 61.87(a) means the student is the sole occupant. No instructor approval can change it.
Source: 14 CFR 61.89(a)(1); 61.87(a)

6 **What is the lowest flight or surface visibility in which a student pilot may fly solo?**

A. 3 statute miles by day or night, in any airspace

B. 1 statute mile by day, as long as you stay clear of clouds

■ **C. 3 statute miles by day, 5 statute miles at night**

61.89(a)(6): not less than 3 statute miles during daylight hours or 5 statute miles at night. This is stricter than the airspace minimums in 91.155, and the stricter rule wins.
Source: 14 CFR 61.89(a)(6)

7 **Solo, you find a layer of scattered-to-broken cloud below you and you can no longer see the ground. Which rule did you break?**

■ **A. Solo flight must be made with visual reference to the surface**

B. None, provided you keep the VFR cloud clearances of 91.155

C. A student pilot may not fly higher than 3,000 feet above the ground

61.89(a)(7). Over-the-top is not available to a student pilot even in VFR conditions. Turn back while the ground is still in sight.
Source: 14 CFR 61.89(a)(7)

8 **Your instructor wrote "winds not above 10 knots, crosswind component not above 5 knots" in your solo endorsement. The wind today is 12 knots straight down the runway. May you go?**

A. Yes, because a headwind is not a crosswind and the limit was about crosswind

■ **B. No; the endorsement's limitations are binding on you**

C. Yes, if the tower controller approves the departure

61.89(a)(8). The endorsement's limitations have the force of the regulation. The headwind exceeds the 10-knot wind limit, so the flight is not authorized until the instructor changes the endorsement.
Source: 14 CFR 61.89(a)(8)

9 **A neighbor offers to pay you to fly a package to the next town during your solo. Which rule applies?**

A. Allowed if the package weighs less than 50 pounds and fits in the baggage area

B. Allowed if the payment only covers the cost of fuel and the rental

■ **C. No carrying property for hire, no flying for hire, no flying in furtherance of a business**

61.89(a)(2), (3) and (4). Three separate prohibitions, and the fuel-money exception that exists for private pilots does not exist for student pilots.
Source: 14 CFR 61.89(a)(2)-(4)

10 **On a local solo you want to land at another airport 15 nautical miles away. What is required?**

■ **A. An endorsement for that airport after training there with your instructor (61.93(b)(1))**

B. A solo cross-country endorsement, since any landing away from home is a cross-country

C. Nothing extra, because the airport is within 25 nautical miles of home

61.93(b)(1): solo flight to another airport within 25 nm of the training airport needs its own endorsement (AC 61-65K A.8) after training to and from it and in its pattern, and the purpose is takeoffs and landings at that airport. Beyond 25 nm, or any other landing away from home, is the solo cross-country rule of 61.93(a).
Source: 14 CFR 61.93(a)(1), (b)(1)

11 **Which medical qualification does the FAA require before a student pilot flies solo in an airplane?**

A. No medical until the private pilot checkride is scheduled

▮ **B. At least a third-class medical, or BasicMed if eligible, before solo**

C. A first-class medical, because an airline career is the plan

61.23(a)(3): at least a third-class medical when exercising the privileges of a student pilot certificate, which is what a solo is. BasicMed (61.23(c)(3)) is the other way: a medical held after July 14, 2006, a U.S. driver's license, a physician's exam on the FAA checklist within 48 months and the online medical course within 24 months. Dual lessons with the instructor as pilot in command do not exercise student pilot privileges.
Source: 14 CFR 61.23(a)(3), (c)

12 **Which documents must be in your physical possession or readily accessible in the airplane on a solo flight?**

A. Your passport, your driver's license, and the airplane's registration and airworthiness certificates

B. Only your logbook with the current solo endorsement, which stands in for the certificate

▮ **C. Student pilot certificate, government photo ID, and medical certificate (or, under BasicMed, the U.S. driver's license)**

61.3(a)(1) the pilot certificate, 61.3(a)(2) acceptable photo identification (a driver's license, a government ID, a passport), 61.3(c) the medical certificate when one is required. On solo cross-country flights 61.51(i)(2) adds the logbook and its endorsements.
Source: 14 CFR 61.3(a), (c); 61.51(i)(2)

13 **How do you log your solo time?**

- ■ **A. As pilot-in-command time, since you are the sole occupant with a solo endorsement**
- B. As "solo" in the remarks only; it never counts as pilot-in-command time
- C. As dual instruction received, because you are still a student pilot

61.51(e)(4). The solo endorsement and sole occupancy are the conditions. Log the make and model, the date, the airport, the time and the number of landings, and keep the endorsement page with it.
Source: 14 CFR 61.51(e)(4)

14 **Besides the knowledge test, what else must happen before an instructor may endorse you for solo?**

- A. At least 20 hours of dual flight time in the make and model, including three hours at night
- ■ **B. Logged training in the 61.87(d) maneuvers and an instructor's finding that you are proficient**
- C. A passing score on the FAA private pilot knowledge test (the written) at a testing center

61.87(c) and (d): the fifteen pre-solo areas for a single-engine airplane, from preflight preparation and taxiing through stalls, emergencies, slips and go-arounds, logged, and a proficiency judgment by the instructor (61.87(p)). There is no hour minimum for solo and the FAA written is not a prerequisite.
Source: 14 CFR 61.87(c), (d), (p)

15 **May you fly solo at night on your day solo endorsement?**

- A. Yes, if the airport has runway lights and the pattern is lighted
- B. Yes, within 25 nautical miles of the home airport and above 3,000 feet
- ■ **C. No; night solo needs its own night training and a night endorsement**

61.87(o). Night is a separate endorsement (AC 61-65K A.5), after night training within the 90 days before the flight. The syllabus plans no night solo.
Source: 14 CFR 61.87(o)

Part B · Part 91: the flight rules

16 **Solo, you are the pilot in command. What does 91.3 say about that?**

- ■ **A. The PIC is responsible for and the final authority on the flight; in an emergency may deviate from Part 91**
- B. The tower controller is the final authority on the flight while you are inside the Class D airspace
- C. The instructor who endorsed you stays responsible for the flight from the ground and may be reached by radio

91.3(a) and (b). If you deviate in an emergency, 91.3(c) says you send a written report if the Administrator asks for one. Your instructor cannot be PIC from the ground; on a solo, that is you.
Source: 14 CFR 91.3

17 **What does 91.103 require of you before every flight, including a local solo?**

A. Call the tower for a weather briefing, a traffic-pattern briefing and the runway in use

B. Become familiar with all available information, including runway lengths and performance data

C. File a VFR flight plan with Flight Service, activate it after takeoff and close it after landing

91.103: all available information; for flights away from the airport's vicinity, weather reports and forecasts, fuel requirements, alternatives and known traffic delays (91.103(a)); for every flight, runway lengths and the takeoff and landing distance data from the POH (91.103(b)).

Source: 14 CFR 91.103

18 **Which of these is the regulation on alcohol?**

A. No crewmember within 24 hours of drinking, and never the night before a solo

B. No crewmember within 12 hours of drinking, bottle to throttle

C. No crewmember within 8 hours of drinking, under the influence, or at 0.04 or more

91.17(a)(1) to (4). Eight hours and 0.04 are the regulation; many operators set stricter company rules (your school may too), and "under the influence" applies regardless of the clock.

Source: 14 CFR 91.17(a)

19 **Which documents must be aboard the airplane, and where must one of them be displayed?**

A. Airworthiness and registration certificates; the airworthiness one displayed at the entrance

B. The POH and the weight-and-balance record, displayed on the panel where the pilot can read them

C. The maintenance logbooks and the annual inspection sign-off, stowed in the baggage compartment

91.203(a)(1) and (2), and (b) for the display rule. The airplane also needs its operating limitations (the POH/AFM and placards, 91.9) and a current weight and balance; the maintenance records stay with the owner.

Source: 14 CFR 91.203(a), (b); 91.9

20 **Which instrument is NOT on the 91.205(b) list of equipment required for VFR flight by day?**

A. An altimeter

B. An attitude indicator

C. A fuel gauge for each tank

91.205(b) lists the airspeed indicator, altimeter, magnetic direction indicator, tachometer, oil pressure and oil temperature gauges, fuel gauges, the landing gear indicator if retractable, an anticollision light system for newer airplanes, safety belts and shoulder harnesses, and an ELT if 91.207 requires one. The attitude indicator is an IFR instrument (91.205(d)). Whether a trainer may fly with it inoperative is a 91.213(d) question.

Source: 14 CFR 91.205(b)

21 **The cabin dome light in your trainer is inoperative. Under what conditions may the airplane still be flown by day?**

A. If the student pilot judges the item unimportant for a daytime local flight and notes it on the dispatch sheet

B. Only after a certificated mechanic repairs it, signs the logbook and returns the airplane to service

■ **C. If not required equipment: deactivated, placarded "Inoperative", and found no hazard (91.213(d))**

91.213(d) for aircraft without a minimum equipment list. Deactivation that involves maintenance is done and recorded under Part 43. If the inoperative item is on a required list, the airplane is grounded until it is fixed.
Source: 14 CFR 91.213(d)

22 **Over a congested area, what is the minimum altitude, and what is it elsewhere?**

■ **A. 1,000 feet above the highest obstacle within 2,000 feet; 500 feet above the surface elsewhere**

B. 1,500 feet above the highest obstacle within 1,000 feet, everywhere except on takeoff and landing

C. 500 feet above the surface everywhere, over towns and open country alike, except for takeoff and landing

91.119(b) and (c), except when necessary for takeoff or landing. 91.119(a) adds the general rule: always high enough that an engine failure allows an emergency landing without undue hazard to persons or property on the surface.
Source: 14 CFR 91.119

23 **Two airplanes converge at about the same altitude. Which one has the right-of-way?**

A. The faster aircraft, because it will clear the conflict sooner

■ **B. The aircraft to the other's right**

C. The aircraft on the left, because it has the other in sight

91.113(d). Head-on, each alters course to the right (91.113(e)). Overtaking, the aircraft being overtaken has the right-of-way and you pass on its right (91.113(f)). An aircraft in distress has the right-of-way over all other traffic (91.113(c)).
Source: 14 CFR 91.113

24 **Two airplanes are approaching the same runway to land. Who has the right-of-way, and what may that pilot not do?**

A. The higher aircraft, because it has the better view of the traffic

B. The aircraft that called the tower or the CTAF first

■ **C. The lower aircraft, but it may not cut in front of or overtake one on final**

91.113(g). An aircraft on final approach or landing has the right-of-way over aircraft in flight or on the surface, and may not force a landed aircraft that is clearing the runway off it.
Source: 14 CFR 91.113(g)

25 **Below 2,500 feet AGL within 4 nautical miles of the primary airport of a Class C or Class D area, the speed limit is**

- **A. 200 knots indicated, unless ATC authorizes or requires otherwise**
- B. There is no indicated-airspeed limit below 10,000 feet MSL
- C. 250 knots indicated, the same as everywhere below 10,000 feet MSL

91.117(b). Below 10,000 feet MSL the general limit is 250 knots (91.117(a)); under a Class B area or in a VFR corridor through one, 200 knots (91.117(c)). A 172 will never get near these, but the question is a favorite on the written.
Source: 14 CFR 91.117

26 **How much fuel must be aboard for a VFR flight in an airplane?**

- A. Enough for the planned flight plus one hour at normal cruising speed, day or night
- **B. To the first landing point plus 30 minutes by day or 45 at night, at normal cruise**
- C. Full tanks on departure, whatever the length of the flight, unless weight and balance forbids it

91.151(a). The regulation is a floor, not a plan: set your own reserve above the legal minimum on the workbook's solo page.
Source: 14 CFR 91.151(a)

27 **Cruising VFR more than 3,000 feet above the surface on a magnetic course of 090 degrees, which altitude is correct?**

- A. 5,000 feet MSL
- B. 4,500 feet MSL
- **C. 5,500 feet MSL**

91.159(a)(1): magnetic course 0 to 179 degrees, any odd thousand plus 500 feet (3,500, 5,500, 7,500); 180 to 359 degrees, even thousands plus 500 (91.159(a)(2)). Below 3,000 feet AGL the rule does not apply.
Source: 14 CFR 91.159(a)

28 **What are the basic VFR weather minimums in Class D or Class E airspace below 10,000 feet MSL?**

- **A. 3 statute miles; 500 below, 1,000 above, 2,000 horizontal from clouds**
- B. 3 statute miles visibility and clear of clouds, the same as Class B airspace
- C. 1 statute mile visibility and clear of clouds, the same as Class G by day

91.155(a). Class B is 3 miles and clear of clouds; Class G at or below 1,200 feet AGL by day is 1 mile and clear of clouds, but 61.89(a)(6) still holds a student solo to 3 miles. Within the surface area of a Class B, C, D or E airport you may not take off, land or enter the pattern unless ground visibility is at least 3 miles (91.155(d)), and you may not fly beneath a ceiling of less than 1,000 feet (91.155(c)).
Source: 14 CFR 91.155(a), (c), (d)

29 **The ATIS at your Class D airport reports a ceiling of 900 feet and visibility 4 miles. May you take off VFR?**

A. Yes, as long as you stay in the traffic pattern at or below 800 feet and in sight of the tower

■ **B. No; VFR is not allowed beneath a ceiling of less than 1,000 feet in that surface area**

C. Yes, because the visibility is above the 3-mile minimum and the pattern is below the clouds

91.155(c). The 3-mile ground visibility rule is 91.155(d). Special VFR (91.157) is an ATC clearance a student should not plan on, and your solo limitations will usually forbid it.
Source: 14 CFR 91.155(c), (d); 91.157

30 **Where is a transponder with altitude reporting (and ADS-B Out) required?**

A. Only in Class A airspace, above 18,000 feet MSL, where every flight is under instrument flight rules

B. Everywhere in the national airspace system, at all times, in every aircraft with an electrical system

■ **C. Class A, B and C; within 30 nm of the listed Class B airports; above B and C to 10,000; at and above 10,000 MSL**

91.215(b) for the transponder, and 91.225 for ADS-B Out in the same airspace since January 1, 2020. When a transponder is installed it must be on, with Mode C, in all controlled airspace (91.215(c)). Class D by itself requires only two-way radio communications (91.129).
Source: 14 CFR 91.215(b), (c); 91.225

31 **The ELT: when must its battery be replaced or recharged?**

■ **A. After 1 cumulative hour of use, or at 50 percent of the battery's useful life**

B. Only when it fails the 12-calendar-month inspection of its installation and controls

C. At every annual inspection, whether or not the transmitter has been used in the year

91.207(c). The ELT is also inspected every 12 calendar months (91.207(d)). 91.207(f)(3) exempts training operations conducted entirely within 50 nm of the airport where the flight began, which is why some trainers fly without one.
Source: 14 CFR 91.207(c), (d), (f)

32 **Your radio fails in the pattern at a towered airport. The tower shows you a flashing red light. It means**

A. Give way to other aircraft and continue circling

■ **B. Airport unsafe, do not land**

C. Return for landing

91.125 (and AIM 4-3-13). In flight: steady green cleared to land; flashing green return for landing; steady red give way and keep circling; flashing red airport unsafe, do not land; alternating red and green, exercise extreme caution. On the ground: steady green cleared for takeoff; flashing green cleared to taxi; steady red stop; flashing red taxi clear of the runway; flashing white return to your starting point.
Source: 14 CFR 91.125; AIM 4-3-13

33 **Your radio fails while you are inbound VFR to your Class D home airport. May you continue to a landing?**

A. Yes, and no clearance is needed because a radio failure is an emergency under 91.3

B. No; you must leave the Class D airspace and divert to an airport without an operating control tower

C. Yes, with basic VFR weather, visual contact with the tower, and a light-gun landing clearance

91.129(d)(2). Squawk 7600 if the transponder works, enter the pattern, watch the tower for the light signals, and acknowledge them by rocking the wings in daylight.
Source: 14 CFR 91.129(d)

Part C · Airspace, the airport and the pattern

34 **To enter Class D airspace, what must you do first?**

A. Establish two-way radio communications before entering, and keep them up inside

B. Receive an explicit ATC clearance to enter, as in Class B, and a discrete transponder code

C. Nothing; Class D is uncontrolled below the traffic pattern altitude, so only the CTAF is needed

91.129(c)(1). Communications are established when the controller answers with your call sign, even if the reply is only "(your call sign), standby"; "aircraft calling Manassas tower, standby" does not count, and you stay outside (AIM 3-2-5). To take off, land or taxi on a runway at a towered airport you need a clearance (91.129(i)).
Source: 14 CFR 91.129(c), (i); AIM 3-2-5 paragraph 2.c

35 **Class C versus Class B: what does each require before you enter?**

A. Both require only a transponder with altitude reporting turned on and ADS-B Out transmitting

B. Class C: two-way communications established; Class B: an ATC clearance (students only with 61.95)

C. Both require a filed VFR flight plan, a discrete transponder code and a clearance before entry

91.130(c)(1) for Class C; 91.131(a)(1) for Class B, and 91.131(b) for who may land there (a student only after meeting 61.95, and never at the Class B airports listed in Part 91, Appendix D, Section 4). Both require the transponder and ADS-B Out of 91.215 and 91.225.
Source: 14 CFR 91.130(c); 91.131(a), (b); 61.95

36 **What are the usual dimensions of Class D airspace?**

A. Surface to 10,000 feet MSL, in a 30-nautical-mile circle around the primary airport

B. From 1,200 feet AGL up to 18,000 feet MSL, with no lateral limit beyond the airport

C. Surface to about 2,500 feet above the airport, usually about 4 nautical miles in radius (individually tailored; read the chart)

Pilot's Handbook of Aeronautical Knowledge Chapter 15 and the chart: a dashed blue line around the airport, with the ceiling in a box ("[26]" means 2,600 feet MSL). Class D runs from the surface to about 2,500 feet above the airport, usually about 4 nautical miles in radius, and each area is individually tailored, so read the chart. Class C is typically a 5-nm core to 4,000 feet above the airport with a 10-nm shelf from 1,200 feet; Class B is an upside-down wedding cake to 10,000 feet MSL. Your own airport's airspace goes on the local worksheet.
Source: Pilot's Handbook of Aeronautical Knowledge FAA-H-8083-25C, Chapter 15, Airspace

37 **Where does Class E airspace usually begin in the area around most airports without a tower?**

- **A. 700 feet AGL inside the magenta shading, 1,200 feet AGL outside it; Class G below**
- B. At the surface everywhere in the United States, so Class G exists only above 14,500 feet MSL
- C. At 10,000 feet MSL, with Class G everywhere below that except around towered airports

Pilot's Handbook of Aeronautical Knowledge Chapter 15. Some airports have Class E to the surface (a dashed magenta line); their surface areas carry the 91.155(c) and (d) rules on ceilings and ground visibility.
Source: Pilot's Handbook of Aeronautical Knowledge FAA-H-8083-25C, Chapter 15, Airspace

38 **The standard traffic pattern altitude for propeller-driven aircraft, unless the Chart Supplement publishes another, is**

- A. 800 feet AGL
- **B. 1,000 feet AGL**
- C. 1,500 feet AGL

AIM 4-3-3: enter the pattern in level flight abeam the midpoint of the runway at pattern altitude; depart straight out or with a 45-degree turn in the direction of the pattern after reaching pattern altitude. Your airport's published pattern altitude goes on the local worksheet.
Source: AIM 4-3-3

39 **At an airport without an operating control tower, which direction are the turns in the pattern?**

- A. Always to the right for airplanes, and to the left for helicopters
- B. Whichever direction gives the shortest approach to the runway in use
- **C. All turns to the left, unless light signals or markings show right traffic**

91.126(b)(1). The segmented circle and the "RP" note on the sectional and in the Chart Supplement tell you where right traffic is in use. At a towered airport in Class D, you circle to the left unless ATC says otherwise (91.129(f)).
Source: 14 CFR 91.126(b)(1); 91.129(f)

40 **Inbound to an airport without a tower, when and where do you self-announce on the CTAF?**

- **A. 10 miles out; entering downwind, base and final; leaving the runway; before taxi and before the runway**
- B. Once on the ground after landing, so the FBO knows you have arrived, and once before departure
- C. Only when another aircraft calls you by your call sign on the frequency, or when the UNICOM operator asks

AIM 4-1-9, Table 4-1-1: inbound at 10 miles out, entering downwind, base and final, and leaving the runway; outbound before taxiing and before taxiing onto the runway. Say the airport name first and last, your position and your intentions; nobody is clearing you, you are telling the others where you are.
Source: AIM 4-1-9, TBL 4-1-1 Summary of Recommended Communication Procedures

41 **Landing behind a larger airplane on the same runway, how do you avoid its wake turbulence?**

A. Fly below its approach path and land short of its touchdown point

■ **B. Stay at or above its approach path, note its touchdown point, land beyond it**

C. Land exactly on its touchdown point, where the vortices have already left

AIM 7-4-6. Departing behind one: rotate before its rotation point and climb above its climb path until you turn clear. Vortices sink and drift with the wind; a light crosswind of 1 to 5 knots can hold the upwind vortex on the runway (AIM 7-4-4). After a larger aircraft's touch-and-go or low approach, allow at least 2 minutes.
Source: AIM 7-4-4, 7-4-6

42 **The tower offers you a land-and-hold-short (LAHSO) clearance. As a student pilot you**

A. Accept it if the runway is dry, the wind is calm and the available landing distance is published

B. Accept it, because an ATC clearance must be followed unless safety requires a deviation

■ **C. Decline it; student pilots should not participate, and the PIC has the final say**

AIM 4-3-11. Say "unable" and the controller will give you the full runway. Your solo endorsement may say so explicitly.
Source: AIM 4-3-11

43 **A sign with white numbers on a red background at a taxiway intersection, for example "27", means**

■ **A. You are at the holding position for Runway 27**

B. Runway 27 is closed; the sign is a closure marker

C. You are on Taxiway 27, and may continue without a clearance

AIM 2-3-8, mandatory instruction signs: red background, white letters, always with a holding position marking (two solid and two dashed yellow lines, AIM 2-3-5; the solid lines are on your side). Yellow-on-black is a location sign (2-3-9); black-on-yellow is a direction or destination sign (2-3-10, 2-3-11).
Source: AIM 2-3-5, 2-3-8 to 2-3-11

44 **On final, the PAPI shows three red lights and one white. You are**

A. On the glide path

■ **B. Slightly low**

C. Slightly high

AIM 2-1-2: two white and two red is on the glide path; three red and one white, slightly low; four red, well below; three white and one red, slightly high; four white, well above.
Source: AIM 2-1-2

45 **The transponder code for a radio failure, and the code for an emergency, are**

A. 1200 for radio failure and 7600 for an emergency

B. 7500 for radio failure and 7700 for an emergency

■ **C. 7600 for radio failure and 7700 for an emergency**

> AIM 4-1-20 (1200 is the VFR code; 7500 is the hijack code), 6-4-2 (7600, two-way radio failure) and 6-2-2 (7700, emergency). Squawk 7700 and say "Mayday" on the frequency you are using, or 121.5 if you are not talking to anyone (AIM 6-3-1).
> *Source: AIM 4-1-20, 6-4-2, 6-2-2, 6-3-1*

46 **Before taxiing at your airport you listen to the ATIS (or AWOS/ASOS). What do you get from it, and what do you tell the controller?**

■ **A. The weather, runway in use and altimeter setting; you tell ground you have the information letter**

B. The current NOTAMs, the TFRs in the area and your solo endorsement limitations

C. A taxi clearance, the runway assignment for departure and the departure frequency

> AIM 4-1-13. Set the altimeter to the reported setting before taxi and compare it with the field elevation; a difference of more than 75 feet is a reason to question the instrument.
> *Source: AIM 4-1-13; AIM 7-2-3*

Part C, local · the eight questions about your airport

These come from the airport page you fill with your instructor, and your instructor grades them against it. Practice answering them out loud, from memory, the night before the test.

L1 What is the traffic pattern altitude here, and which runways use right traffic?

L2 The wind is from the direction your instructor names on the worksheet: which runway do you use, and how do you enter the pattern for it?

L3 Which frequency do you call before taxi, and what do you say? If this airport has a tower, what clearance do you need before taking the runway?

L4 What class of airspace is this airport in, and what does that require of you to operate here?

L5 Name the nearest airspace you must stay out of on a solo, and how you will know where its boundary is.

L6 Where is the practice area, what altitudes do you use there, and what is the route back to the pattern?

L7 The engine quits on downwind, abeam the numbers. Where do you go? And on upwind at 500 feet?

L8 List the limitations in your solo endorsement from memory (winds, visibility, ceiling, time of day, airports).

Part D · The airplane: the Cessna 172N

47 **In the 172N, VA (maneuvering speed) at 2,300 pounds is 97 KIAS. At 1,600 pounds it is**

A. 105 KIAS; a lighter airplane has a higher maneuvering speed

B. 80 KIAS; maneuvering speed goes down with weight

C. 97 KIAS; maneuvering speed does not change with weight

POH Section 2: VA 97 KIAS at 2,300 lb, 89 at 1,950, 80 at 1,600. Solo, light on fuel, your VA is in the 80s, and in turbulence you slow to it. VA is not a guarantee: it covers one full deflection of one control, not abrupt or combined inputs.
Source: Cessna 172N POH (1978), Section 2, Limitations

48 **Maximum flap extended speed in the 172N is**

A. 128 KIAS with any flap setting, the top of the green arc

B. 160 KIAS, the never-exceed speed, with any flap setting

C. 85 KIAS, the top of the white arc, for any flap setting

POH Section 2: VFE 85 KIAS. The white arc runs 41 to 85 KIAS, the green arc 47 to 128, the yellow arc 128 to 160, and the red line is 160 (VNE).
Source: Cessna 172N POH (1978), Section 2, Limitations

49 **The 172N's maximum takeoff weight in the normal category, and its usable fuel with standard tanks, are**

A. 2,300 pounds; 40 gallons usable of 43 total

B. 2,400 pounds; 48 gallons usable of 50 total

C. 2,450 pounds; 40 gallons usable of 42 total

POH Section 2: maximum takeoff and landing weight 2,300 lb; utility category 2,000 lb; standard tanks 21.5 gallons each, 43 total, 40 usable, 3 unusable (long-range tanks: 54 total, 50 usable). Approved fuel: 100LL (blue) or grade 100 (green).
Source: Cessna 172N POH (1978), Section 2, Limitations

50 **Which fuel may go into a 172N, and what color is it?**

A. Automotive premium, if the avgas pump is out of service

B. 100LL, blue, or grade 100, green

C. Jet A, clear or straw-colored, from the turbine pump

POH Section 2. Sump the tanks before every flight and look for the color, water and sediment; Jet A in a piston engine is a fatal mistake that has happened at fuel pumps.
Source: Cessna 172N POH (1978), Section 2, Limitations

51 **Where must the fuel selector be for takeoff and landing?**

A. Whichever tank is fuller at the time of the runup

B. LEFT or RIGHT, alternating, to keep the tanks even

C. BOTH

POH Section 2, the fuel limitations and the placard forward of the fuel selector: both tanks on for takeoff and landing. LEFT and RIGHT are for level flight only.

Source: Cessna 172N POH (1978), Section 2, Limitations

52 **How does the 172N POH use the flaps for takeoff and landing?**

A. Normal and short-field takeoffs with flaps up (10 degrees for soft or rough fields); landing with any setting up to 40 degrees

B. Every takeoff with 20 degrees of flaps; landing with 30 degrees only

C. Flaps are never used for takeoff in the 172N; landing with 10 degrees only

POH Section 4: normal and short-field takeoffs are made with flaps up; 10 degrees is reserved for soft or rough fields. Landing approaches can be made with any flap setting; short-field landings use 40 degrees. A placard near the flap indicator says: avoid slips with flaps extended. In a balked landing, reduce the flaps to 20 degrees right after full power.

Source: Cessna 172N POH (1978), Sections 2 and 4

53 **Maximum baggage in the 172N is**

A. 200 pounds anywhere behind the rear seat, if under gross weight

B. 120 pounds in area 1, 50 in area 2, 120 combined

C. No limit, as long as the airplane stays under its maximum weight

POH Section 2. In the utility category the baggage compartment must be empty and the rear seat unoccupied. Weight and balance for your solo is on the C172 calculator page and in the POH Section 6.

Source: Cessna 172N POH (1978), Section 2, Limitations

54 **The maximum demonstrated crosswind for the 172N is 15 knots. What kind of number is that?**

A. A hard limitation; the airplane may not be operated above it

B. The wind at which the airplane can no longer be kept straight on the runway

C. A demonstrated value, not a limitation; your endorsement sets a lower limit

POH Section 4: maximum demonstrated crosswind velocity, takeoff or landing, 15 knots. Compute the crosswind component before every flight; the syllabus's F8 drill is a 15-knot wind 40 degrees off the runway.

Source: Cessna 172N POH (1978), Section 4, Normal Procedures

55 **Engine failure after takeoff in a 172N, too low to turn back. The airspeeds to fly are**

- **A. 65 KIAS flaps up, 60 KIAS flaps down, landing straight ahead**
- B. 90 KIAS, to reach a field farther away before the airplane slows
- C. 55 KIAS, the rotation speed, turning back toward the runway

POH Section 3, Engine Failure Immediately After Takeoff: airspeed 65 (flaps up) or 60 (flaps down); mixture idle cut-off; fuel selector valve OFF; ignition OFF; wing flaps as required; master OFF; land straight ahead. The nose goes down first, before anything else.
Source: Cessna 172N POH (1978), Section 3, Emergency Procedures

56 **Engine failure at altitude: what is the 172N best glide speed, and what comes right after setting it?**

- A. 55 KIAS; then master switch OFF, the fuel selector to the fuller tank and the mixture leaned
- **B. 65 KIAS; then carburetor heat ON, fuel selector BOTH, mixture RICH, ignition BOTH, primer in and locked**
- C. 80 KIAS; then the throttle full open and the flaps set to 20 degrees

POH Section 3, Engine Failure During Flight: airspeed 65 KIAS; carburetor heat ON; fuel selector valve BOTH; mixture RICH; ignition switch BOTH (or START if the propeller has stopped); primer IN and LOCKED. The carbureted 172N has no fuel pump and no separate fuel shutoff valve; the fuel selector has an OFF position. Pitch for 65 first, pick the field second, then the flow.
Source: Cessna 172N POH (1978), Section 3, Emergency Procedures

57 **The 172N's best rate-of-climb speed at sea level (VY), its best angle-of-climb speed (VX), and the speed at which you lift the nose wheel on a normal takeoff are**

- A. VY 90, VX 80, lift the nose at 65 KIAS
- B. VY 59, VX 73, lift the nose at 60 KIAS
- **C. VY 73, VX 59, lift the nose at 55 KIAS**

POH Section 4: best rate of climb 73 KIAS and best angle of climb 59 KIAS at sea level (68 and 61 at 10,000 feet); normal takeoff, lift the nose wheel at 55 and climb out at 70 to 80. VX gains the most altitude per distance (obstacles); VY the most per minute. Normal approach: 60 to 70 KIAS flaps up, 55 to 65 with 40 degrees; short field: 60 KIAS.
Source: Cessna 172N POH (1978), Section 4, Normal Procedures

58 **The 172N's stall speeds at maximum weight, power off, as marked on the airspeed indicator, are**

- **A. 47 KIAS clean, 41 KIAS with full flaps**
- B. 40 KIAS clean, 33 KIAS with full flaps
- C. 55 KIAS clean, 48 KIAS with full flaps

POH Section 2, the airspeed indicator markings: the bottom of the green arc (47) and of the white arc (41) are the stall speeds at maximum weight and the most forward CG. Section 5 lists 42 and 36 KIAS at the most aft CG. In a level 60-degree bank the load factor is 2 G and the stall speed rises about 41 percent; a steep, slow turn to final is where that matters.
Source: Cessna 172N POH (1978), Section 2, Limitations

59 **What are the minimum and maximum oil pressure limits (red lines) in the 172N?**

A. Minimum 10 psi, maximum 60 psi

B. Minimum 25 psi, maximum 100 psi

C. Minimum 50 psi, maximum 80 psi

POH Section 2, power plant instrument markings: oil pressure red line 25 psi minimum and red line 100 psi maximum; 60 to 90 psi is the green arc, the normal operating range. Oil temperature green 100 to 245 degrees F. The 172N has no oil pressure warning light, so only your scan catches it. Oil pressure lost with oil temperature rising: the POH (Section 3, Low Oil Pressure) says engine failure is imminent; reduce power and pick a forced-landing field now.

Source: Cessna 172N POH (1978), Sections 2 and 3

60 **The 172N engine is**

A. A fuel-injected Lycoming IO-360, 180 horsepower at 2,700 rpm

B. A carbureted Continental O-200, 100 horsepower at 2,750 rpm

C. A carbureted Lycoming O-320, 160 horsepower at 2,700 rpm

POH Sections 1 and 2: Lycoming O-320-H2AD, 160 BHP at 2,700 rpm. Carbureted means carburetor ice is possible and carburetor heat is part of the run-up, the descent and the engine failure flow; the engine is primed with the manual primer, which you lock after the start. The course is built on the 172N on purpose; your school's airplane may differ, and the worksheet is where its numbers go.

Source: Cessna 172N POH (1978), Sections 1 and 2

61 **Where do the operating limitations for the airplane you will solo come from, legally?**

A. The approved flight manual, the markings and the placards (91.9)

B. The Private Pilot ACS and the examiner's briefing before the checkride

C. The flight school's website, its rental agreement and its insurance policy

91.9(a): no one may operate a civil aircraft without complying with the operating limitations in the approved AFM, markings and placards. For the 1978 172N, 91.9(b)(2) applies: the approved manual material (POH Section 2), markings and placards must be in the airplane. The ACS is the test standard, not the airplane's limits.

Source: 14 CFR 91.9; Cessna 172N POH (1978)

62 **Before every flight the POH preflight has you check the fuel in each tank, sump the drains, and check the oil. What do you do if you find water in a fuel sample?**

A. Shake the sample and fly if it is mostly blue; a little water burns off in the engine

B. Keep draining until the sample is clean; if water keeps coming, do not fly

C. Add fuel to the tank to dilute the water, then run the engine for five minutes before taxiing

POH Section 4, preflight inspection. Water sits at the bottom of the sample, as a clear layer or bubbles under the blue fuel. The 172N has a quick-drain at each wing tank sump and a fuel strainer drain; the syllabus's F1 teaches the walk-around in the POH order.

Source: Cessna 172N POH (1978), Section 4, Normal Procedures

YOUR AIRPORT · FILL THIS WITH YOUR INSTRUCTOR

The local airport worksheet

The regulation asks about the airport where you will solo. Fill this in with your instructor, from the Chart Supplement, the sectional chart, the airport diagram and the school's own rules; then you can answer the eight local questions in the test.

Airport name and identifier

Field elevation (feet MSL)

Traffic pattern altitude (feet MSL and AGL), and for which aircraft

Runways: numbers, lengths, widths, surface; which have right traffic

Frequencies: CTAF or tower, ground, ATIS/AWOS/ASOS, approach or Flight Service

Airspace at the airport: class, ceiling, lateral limits; the airspace above and beside it

Required calls or clearances here: taxi, takeoff, landing; where the hold-short lines and hot spots are

Local procedures: noise abatement, pattern entry and departure, intersection departures, LAHSO

The practice area(s): where, how to get there and back, the altitudes, the calls

Airspace to stay out of nearby: Class B, C or D, restricted, TFR sources checked before each flight

Emergency fields and airports within gliding distance of the pattern and the practice area

Weather and NOTAMs: where the student gets the briefing before a solo; the go/no-go numbers in the endorsement

Your solo limitations for this student: winds, crosswind, visibility, ceiling, time of day, airports allowed

PART D · 61.87(b)(1)(iii) · ONLY IF THE AIRPLANE IS NOT A CESSNA 172N

The airplane worksheet

Part D of the test is written for the Cessna 172N. If you fly something else, fill this page from your airplane's POH with your instructor: these are the numbers you must know cold before you solo, whatever the airplane.

Make, model and N-number

VR, VX, VY (sea level)

VA at maximum weight, and at the weight you solo

VFE (each flap range), VNO, VNE

VS0, VS1, best glide

Maximum takeoff and landing weight; your solo weight and CG (from the weight and balance you computed)

Fuel: total, usable, grade and color; the selector position for takeoff and landing

Oil: capacity and the minimum for flight

Flap settings approved for takeoff; for landing

Maximum demonstrated crosswind

Engine failure after takeoff: the speeds

Engine failure in flight: the restart flow, in order

Normal and short-field approach speeds

WHERE THE RULES LIVE · ALL FREE

The references

- 14 CFR Part 61, Subpart C (student pilots): 61.87, 61.89, 61.93, 61.95; and 61.3, 61.23, 61.51
  ECFR.GOV, TITLE 14, CHAPTER I, SUBCHAPTER D
- 14 CFR Part 91: 91.3, 91.9, 91.17, 91.103, 91.113, 91.117, 91.119, 91.125, 91.126, 91.129, 91.130, 91.131, 91.151, 91.155, 91.157, 91.159, 91.203, 91.205, 91.207, 91.213, 91.215, 91.225
  ECFR.GOV, TITLE 14, CHAPTER I, SUBCHAPTER F
- Aeronautical Information Manual: 2-1-2, 2-3-5 to 2-3-11, 3-2-4, 3-2-5, 4-1-9, 4-1-13, 4-1-20, 4-3-3, 4-3-11, 4-3-13, 6-2-2, 6-3-1, 6-4-2, 7-2-3, 7-4-4, 7-4-6
  FAA.GOV, AIR TRAFFIC, PUBLICATIONS
- Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25C), Chapter 15 (airspace), Chapter 14 (airport operations)
  FAA.GOV, HANDBOOKS AND MANUALS
- Cessna 172N POH (1978), Sections 1 to 5 (general, limitations, emergencies, normal procedures, performance)
  IN THE AIRPLANE; THE 1978 COPY IS ON THE C172 CALCULATOR PAGE
- AC 61-65K, Appendix A: the endorsements A.3, A.4, A.6 (and A.14)
  FAA.GOV, THE DOCUMENT LIBRARY
- The Private Pilot Syllabus (Lesson C1 is this test; G3, G4 and F1 to F12 are the material) and the Workbook (the hours tracker and the endorsement register)
  PILOTCAREERSOLUTIONS.COM/FREE

THE DAY YOU SOLO · WHAT TO BRING

Your student pilot certificate and a government photo ID (61.3(a)); your medical certificate, or the BasicMed documents if that is your basis (61.3(c), 61.23); your logbook with the A.3, A.4 and A.6 endorsements and their limitations (61.87(n), (p)); the airplane's airworthiness and registration certificates aboard (91.203); the weight and balance you computed; the weather briefing and NOTAMs; and the limitations in your endorsement, from memory.

CAPTAIN'S TAKE

The first solo is three landings you have already made a hundred times, without the person who kept you honest in the right seat. The test is how the regulation makes sure the honesty came along. Know the rules, know your airport, know your airplane, and the airplane will be lighter and climb better than you expect.