

PRIVATE PILOT · AIRPLANE

Private Pilot

Quick-Review Guide

Understand the key concepts, practice the calculations and explain your decisions. Prepare with focused examples and oral questions tied to the FAA test standards.

MODE 01**5-minute scan**

Tables, limits and numbers. Find it and move on.

MODE 02**30-minute review**

Work the diagrams and the arithmetic. Say the answers out loud.

MODE 03**Oral prep**

Answer each DPE prompt before reading the model response.

STANDARD

FAA-S-ACS-6C, Private Pilot for Airplane Category — document dated November 2023, incorporated by reference into 14 CFR effective 31 MAY 2024

SCOPE

ASEL/AMEL knowledge, risk management and the operational decisions behind them. Seaplane Tasks are identified but not treated in depth in this edition.

REFERENCES

FAA standards, regulations and handbooks.

STUDY

Pilot Method · Checkride preparation

How to use this guide

Read the explanation, work the example, then answer the oral question before checking the response. Apply each topic to the airplane you fly. Use its current AFM/POH for speeds, limitations and procedures, and current regulations, charts and weather for flight decisions.

Eligibility, currency and what you must carry

Three separate clocks and one document check. Examiners start here because a failure here ends the test before the airplane moves.

DIRECT ANSWER – AERONAUTICAL EXPERIENCE, ASEL
40 hours total: at least **20 hours** of flight training from an authorized instructor and **10 hours** of solo flight in the required areas. Within that: 3 hours cross-country training, 3 hours night training including one cross-country over 100 NM total distance and 10 takeoffs and landings to a full stop at an airport, 3 hours by reference to instruments, and 3 hours of test preparation within the preceding 2 calendar months.

14 CFR 61.109(a)

SOLO EXPERIENCE INSIDE THAT

Solo	10 hours in a single-engine airplane
Solo XC	5 hours of solo cross-country
The long one	One solo cross-country of at least 150 NM, full-stop landings at three points, and a straight-line segment of more than 50 NM between takeoff and landing.
Tower	Three takeoffs and landings to a full stop at an airport with an operating control tower

These are minimums, not readiness. The number that matters is the one where you meet the ACS standards consistently.

14 CFR 61.109(a)(2), (5)

CHECKRIDE TRAP

Confusing the three currency clocks. The **flight review** is 24 calendar months. **Day passenger currency** is three takeoffs and landings in the preceding 90 days. **Night passenger currency** is three takeoffs and landings **to a full stop** in the preceding 90 days, in the period from 1 hour after sunset to 1 hour before sunrise. Different windows, different requirements, and the night one is not the same window as loggable night.

14 CFR 61.56, 61.57(a), (b)

CURRENCY SCENARIOS THE EXAMINER RUNS

Night passengers	Three takeoffs and landings to a full stop, at night (1 hour after sunset to 1 hour before sunrise), in the preceding 90 days, in the same category and class — the day landings do not count for night, the night ones count for both
Tailwheel	The three landings must be to a full stop in a tailwheel airplane; a tricycle-gear currency does not carry across
Flight review lapsed	You may not act as PIC at all — not even solo — until the review is completed; a new certificate or rating within the period counts as one
The checkride itself	Passing a practical test for a certificate or rating resets the flight-review clock (61.56(d))

14 CFR 61.56, 61.57(a)–(b)

TO ACT AS PIC, YOU CARRY

61.3

Pilot certificate	Or an authorized temporary document
Medical	Required medical certificate, or valid U.S. driver's license when operating under BasicMed.
Photo ID	Government-issued

Present them on a lawful request from the FAA, NTSB, law enforcement or an authorized TSA representative. Keep your certificate address current. A logbook is not normally carried on a routine domestic flight — but the **endorsements and records must exist**.

14 CFR 61.3, 61.51, 61.60

THREE CLOCKS, SIDE BY SIDE

FLIGHT REVIEW — 24 calendar months

DAY PASSENGERS — 90 days

NIGHT PASSENGERS — 90 days

same category, class, type

full stop, 1 hr after sunset to 1 hr before sunrise

Currency meets the rule; proficiency means you can fly safely today.

DPE ORAL

Your flight review was 20 months ago and your last three landings were 100 days ago. Can you fly today, and can you take your friend?

STRONG FIRST ANSWER

I can fly — the flight review is good for 24 calendar months. I cannot carry my friend: passenger currency needs three takeoffs and landings in the preceding 90 days and I'm at 100.

ADD IF ASKED

If otherwise qualified, I can regain currency solo: three takeoffs and landings in the required category, class and type if needed. Night passenger currency requires full-stop landings in the specified period. If rusty, I would practice more or fly with an instructor.

DPE FOLLOW-UP

Your medical is a third class issued 28 months ago; you were 38 when it was issued. Can you carry a passenger today?

STRONG FIRST ANSWER

Yes. Under 40 at the date of the exam, a third-class medical is good for private privileges for 60 calendar months, so it runs to the end of the month five years from issue — I have almost three years left. Forty or older at issue, it would have expired after 24 calendar months.

ADD IF ASKED

Whether it is a first- or second-class certificate does not change the answer: those privileges step down to third-class after 12 months, and third-class privileges run to the same 60/24-month limit.

Lift, angle of attack and the four forces

Lift depends on speed, air density, wing area and lift coefficient. A stall occurs when critical angle of attack is exceeded.

LIFT, AND WHAT ACTUALLY CHANGES IT

$$L = C_l \times \frac{1}{2} \rho V^2 \times S$$

coefficient of lift × dynamic pressure × wing area

C_l changes mainly with **angle of attack** and configuration

ρ air density—the density-altitude term

V^2 velocity squared—double the speed, four times the lift at the same AOA

S Wing area. Fowler flaps increase area as well as lift coefficient.

In level flight the pilot trades AOA against airspeed to hold lift equal to weight.

Relative wind and angle of attack

Relative wind is the direction the air moves relative to the wing—opposite the flight path, not related to the wind on the ground. **Angle of attack** is the angle between the relative wind and the chord line. It is **not** pitch attitude: you can be pitched level at a high AOA, or steeply nose-down at a low one.

Drag

Parasite

Rises rapidly with speed—form, skin friction, interference

Induced

A by-product of lift; greatest at **low speed and high AOA**

Total drag

Lowest at L/D max: best glide. Maximum endurance is slower, at minimum power required.

Below the minimum-power speed, flying slower requires more power to maintain altitude. This is the region of reversed command.

FAA-H-8083-25C Ch. 5; ACS PA.I.F.K3

STABILITY – A TENDENCY, NOT A GUARANTEE

Positive static

Initial tendency to return toward equilibrium after a disturbance

Neutral static

Stays where it is put

Negative static

Initial tendency to move further away

Dynamic

What the motion does **over time**—the oscillation damps, holds, or grows

Longitudinal stability about the lateral axis is the one CG position changes most. An **aft** CG reduces longitudinal stability and lowers stick force; a **forward** CG increases stability and stall speed and can reduce elevator authority in the flare.

AXES AND CONTROLS

Roll

Longitudinal axis · ailerons

Pitch

Lateral axis · elevator or stabilator

Yaw

Vertical axis · rudder

All three axes pass through the **centre of gravity**. **Adverse yaw** occurs because the rising wing, with its aileron deflected down, produces more lift and induced drag. Coordinate rudder with aileron.

Secondary controls: flaps change lift and drag; trim relieves sustained control force. Leading-edge devices, spoilers and adjustable stabilizers apply only when installed.

FAA-H-8083-25C Ch. 5-6; ACS PA.I.G.K1a, K1b

LEFT-TURNING TENDENCIES

T

Torque—the reaction to propeller rotation, rolling the airplane left

P

P-factor—the descending blade takes a bigger bite at high AOA, yawing left

S

Spiralling slipstream—the corkscrew flow striking the left side of the vertical stabilizer

G

Gyroscopic precession—a force applied to the spinning propeller shows up 90° later in the direction of rotation; most noticeable raising the tail

Torque and slipstream are pronounced at high power and low speed; high AOA increases P-factor. Precession depends on changing the propeller disk's orientation. Use coordinated rudder as needed.

PA.IV.C.K6

WHAT THE EXAMINER IS REALLY ASKING ABOUT LIFT

"What makes the airplane climb?"

Excess thrust, not excess lift: in a steady climb lift is slightly *less* than weight; the engine's power beyond what level flight needs is what buys altitude—the reason a heavy, hot airplane climbs poorly

"Why does the nose drop in a turn?"

Part of the lift now points sideways; the vertical component shrinks, so back pressure (more AOA) restores it—and the load factor rises with it

"What is the relative wind?"

The air the wing meets, opposite the flight path—not the direction the nose points. AOA is measured from it, which is why a descending airplane with the nose up can have a high AOA

"How does a flap change things?"

More camber: more lift at a given AOA, lower stall speed, more drag, a lower nose attitude for the same approach speed—and a pitch change when they move

FAA-H-8083-25C Ch. 4; FAA-H-8083-3C Ch. 3

DPE FOLLOW-UP

Trimmed at cruise, you pull the throttle to idle and do nothing else. What does the airplane do, and why?

STRONG FIRST ANSWER

It slows, the nose drops, and it settles into a descent at roughly the trimmed airspeed—the trim holds an angle of attack, not an altitude. Longitudinal stability is doing the work: lift fell with speed, the nose sought the trimmed AOA, and the airplane found a new equilibrium going down.

ADD IF ASKED

That is the demonstration behind "pitch for airspeed": if I now want the same speed with a shallower descent I add power, not back pressure.

PRIVATE PILOT QUICK-REVIEW

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