FLY
AVIATION

Training aid only, not flight instruction. Review it with your CFI and get their approval before you use it in training or in the airplane. Check every number against the POH and current FAA sources. Last reviewed Nov 7, 2026.

ORAL EXAM: 20 SCENARIO QUESTIONS

Private pilot checkride · Oral · Say your answer out loud, then tap to check

HOW TO ANSWER A SCENARIO

The examiner rarely asks "what does 61.57 say?" They hand you a situation and listen to how you think. These twenty come up again and again. The fact-by-fact questions are in Private Pilot Oral Exam Prep; this page is about putting the facts together.

- **Answer first.** Yes, no, or what you would do. Then explain.
- **Name the rule and where it lives.** "61.57(a)" or "the POH, section 3" shows you can find it again.
- **Apply it to this airplane and this day.** Our Cherokee, our field, today's weather. A textbook answer that ignores the airplane in front of you is half an answer.
- **Decide, and say what would change your mind.** "No-go today. If the ceiling lifts above 3,000 by noon, I'd look again."
- **Open the book when you need to.** Finding the answer in the FAR/AIM or POH is a good answer. Guessing is not.
- Each question below has a short answer, the steps to talk through, the trap examiners like, and the follow-ups to expect.

YOU AND YOUR LOGBOOK

Can you take this checkride, and can you carry a passenger afterward?

1. "Show me you're eligible to take this checkride today."

Short answer: Go through it in order, with each document open: who you are, that you're medically fit, that you passed the knowledge test, that your instructor signed you off, and that your hours meet 61.109.

1. **You:** government photo ID (you're at least 17 and read, speak and understand English, 61.103), your student pilot certificate and your medical certificate.
2. **Knowledge test:** the test report, passed within the preceding 24 calendar months (61.39(a)(1)).
3. **Endorsements:** pre-solo, solo (and its 90-day renewals), each solo cross-country, and the practical test endorsement saying you've had training in the preceding 2 calendar months, are prepared, and have been reviewed on the areas you missed on the knowledge test (61.39(a)(6)).
4. **Hours under 61.109(a):** 40 total, including 20 with an instructor and 10 solo.
5. **Inside the 20 dual:** 3 cross-country; 3 night, with a cross-country over 100 nm total and 10 takeoffs and 10 full-stop landings; 3 on instruments; 3 of checkride prep in the preceding 2 calendar months.
6. **Inside the 10 solo:** 5 solo cross-country; one solo cross-country of at least 150 nm total, with full-stop landings at three points and one leg of at least 50 nm straight-line; and 3 full-stop takeoffs and landings at an airport with an operating control tower.
7. **The application:** FAA Form 8710-1 completed in IACRA and signed by your instructor.

The trap: the solo towered-field landings. KONZ has no tower, so they had to happen somewhere else, such as KYIP or KTOL. Find them in your logbook before the examiner asks. Tab every requirement in the logbook so you can point to it.

Next they may ask: "What does the student pilot certificate let you do, and what limits did your endorsements put on you?" (61.87, 61.89, 61.93.)

2. "You got your certificate in the spring. Your last landing was 106 days ago. A friend wants a sunset ride over the river on Saturday. Can you take them?"

Short answer: Not yet. To carry a passenger you need 3 takeoffs and landings in the preceding 90 days, as sole manipulator of the controls, in the same category and class (61.57(a)). 106 days is too long. Go fly three, alone or with a CFI, then take your friend.

1. Being out of currency doesn't stop you flying solo. It stops you carrying passengers.
2. "Sunset ride" is the second half of the question. If you'll be landing more than 1 hour after sunset, you also need 3 takeoffs and 3 full-stop landings done between 1 hour after sunset and 1 hour before sunrise in the last 90 days (61.57(b)).
3. Check the rest: flight review within 24 calendar months (61.56), medical current, and a real weight and balance for two people in our Cherokee.

The trap: there are three different "nights" in the rules. Position lights from sunset to sunrise (91.209). Night flight time you may log from the end of evening civil twilight to the beginning of morning civil twilight (1.1). Passenger currency from 1 hour after sunset to 1 hour before sunrise (61.57(b)). Know which is which.

Next they may ask: "Can your friend pay for half the fuel?" Yes, if you pay at least your pro rata share and you share a common purpose for the trip (61.113(c)).

THE AIRPLANE

Is it airworthy, and what do you do when something on the panel stops working?

– 3. "Prove to me this airplane is airworthy."

Short answer: Airworthy means two things: the airplane conforms to its type design, and it is in a condition for safe operation (14 CFR 3.5(a)). I show the first with the paperwork and the second with the logbooks and my preflight. As PIC, the final call is mine (91.7).

1. **Conforms to type design:** the equipment installed matches the current weight and balance and equipment list. Any major repair or alteration has its Form 337, and any STC is documented with its flight manual supplement if it has one.
2. **Documents in the airplane:** airworthiness certificate displayed, registration, the POH with its placards and markings, and the weight and balance (91.203, 91.9).
3. **Inspections, from the logbooks:** annual within the preceding 12 calendar months (91.409), transponder within 24 calendar months (91.413), ELT within 12 calendar months and its battery in date (91.207). Pitot-static (91.411) is only for IFR.
4. **ADs:** show the AD compliance record, including any recurring ADs and when the next one is due (91.403, Part 39).
5. **Equipment:** what 91.205(b) requires for day VFR is installed and working. Anything inoperative is handled under 91.213(d) (question 4).
6. **Condition for safe operation:** a thorough preflight with the checklist. Fuel quantity and quality, oil, controls, tires, no damage.

The trap: "We don't need a 100-hour." True for our flying, because nobody is carrying passengers for hire or giving flight instruction for hire in an airplane they provide (91.409(b)). Say why, don't just say no.

Next they may ask: "Who can do maintenance? What can you do yourself as an owner?" Preventive maintenance under Part 43, Appendix A, logged per 43.9.

4. "During taxi, the turn coordinator is dead. Do you go?"

Short answer: Our Cherokee has no MEL, so I use 91.213(d). The turn coordinator isn't required for day VFR, so the flight can be legal, but only after it is deactivated or removed and placarded "Inoperative". That means taxiing back first.

1. Is it required by the airplane's VFR-day type certification? Not for our Cherokee.
2. Is it on the equipment list or a kinds of operations equipment list in the POH as required? Check ours.
3. Is it required by 91.205 or another rule for this flight? Not for day or night VFR.
4. Is it required by an AD? Check the AD list.
5. All four "no": deactivate it (for example, pull and collar its breaker if that is all it takes) or have it removed, and placard it "Inoperative". If deactivating or removing it is maintenance, a mechanic does it and logs it (43.9).
6. Then decide, as PIC, that flying without it is not a hazard (91.213(d)(4)).

The trap: "It isn't required, so I'll just go." Not legal without the placard and deactivation. And think about why it matters in our airplane: the turn coordinator is electric and is the backup for the vacuum attitude and heading indicators. With it gone, a vacuum failure leaves you with very little. Is that a hazard on a hazy day? Say so.

Next they may ask: "What if it was the fuel gauge? The transponder?" The fuel gauge is required by 91.205(b), so no-go. The transponder is required within the Detroit Mode C veil (91.215), so at KONZ it's a no-go unless ATC authorizes the flight.

WEATHER AND FUEL

The go or no-go decision, and having enough fuel to get there and back.

5. "Here's today's weather. Are we going?"

Short answer: Work it from big picture to small: what's happening, is it legal, is it within my personal minimums, and what's my way out. Then give a clear go or no-go.

1. **Get a briefing** through 1800wxbrief.com, Flight Service, or an EFB that uses the same FAA-approved source. 91.103 requires you to get all available information, including weather, for any flight away from the airport.
2. **Big picture:** surface analysis and prog charts, the Graphical Forecasts for Aviation, fronts moving through.
3. **Hazards:** AIRMETs (Sierra for IFR and mountain obscuration, Tango for turbulence and wind, Zulu for icing), SIGMETs, convective SIGMETs, PIREPs.
4. **Now and later:** the KONZ AWOS and METARs along the route, the KDTW TAF for the area, the TAF or nearest TAF for the destination, winds aloft for the cruise altitude.
5. **Is it legal?** VFR minimums for each airspace on the route (91.155). Under the Class B shelf around KONZ you're mostly in Class E.
6. **Is it within my personal minimums?** Ceiling, visibility, wind and crosswind for 4/22 at KONZ, and the runway at the other end.
7. **NOTAMs and TFRs** for both fields and the route.
8. **Decide:** go, no-go, or go with a plan B: an alternate, a turn-back point, a time to be on the ground.

The trap: "It's VFR, so we're good." Legal isn't the same as safe. Watch for anything that is a no-go on its own: thunderstorms on or near the route, icing, low-level wind shear, or anything below your personal minimums. Around here, also watch the temperature and dew point spread near the lakes: fog and low ceilings come fast.

Next they may ask: decode a METAR or TAF on the spot. Practice with the decoder in the Aviation Weather Study Guide.

6. "Do you have enough fuel to get there?"

Short answer: Show it with numbers from the POH, not a guess: fuel for start, taxi and takeoff, the climb, the cruise and the descent, plus the reserve the rules require and the one I add for myself.

1. **Fuel on board:** our Cherokee holds 50 gallons, 48 usable. Check both tanks visually before every flight. The gauges help but they aren't proof.
2. **Burn:** plan 8.5 to 9 gal/hr in cruise. Use the POH climb chart for time, distance and fuel to climb, and add some for taxi and run-up.
3. **Time:** distance ÷ groundspeed for each leg, using the winds aloft. Round up.
4. **Reserve:** day VFR requires enough to reach the first point of intended landing and then fly 30 minutes at normal cruise; at night, 45 minutes (91.151).
5. **My reserve:** many pilots plan to land with at least an hour of fuel. Say what yours is and why.
6. **Tanks:** plan the tank switches. Switch on the hour, pump on, and write down the time.

The trap: reading a chart without its notes. Performance charts assume conditions: power setting, mixture leaned as described, wheel fairings installed. Our POM cruise numbers assume fairings; without them, cruise is about 3 mph slower and the trip takes more fuel.

Next they may ask: "How much does your fuel weigh, and can you fill both tanks with two people aboard?" 6 lb/gal. With full fuel our Cherokee has only about 466 lb left for people and bags. Do the weight and balance.

7. "You're in cruise and a thunderstorm is building over your destination. What now?"

Short answer: Don't go in. Turn toward an alternate I can reach with fuel to spare and a runway long enough for our airplane, and stay at least 20 nm from the storm (AIM 7-1-29). Land, wait for it to move off or die out, and go later.

1. **Turn first, then plan.** Pick the alternate, turn toward it, and get established. Fine-tune once you're headed the right way.
2. **Estimate:** heading from the chart or GPS, distance, time and fuel. Thirty nm at 95 kt groundspeed is about 19 minutes, roughly 3 gallons at 9 gal/hr.
3. **Tell someone:** ATC if you're on flight following, Flight Service if you filed a flight plan.
4. **On arrival:** get the alternate's weather. Watch for gust fronts ahead of the storm.

The trap: "It's just over the field, I'll land before it gets there." The gust front and microbursts can reach well out from the storm, and they hit on short final when you're low and slow. A single-cell storm often lasts well under an hour. Waiting is cheap.

Next they may ask: "What are the three stages of a thunderstorm, and what does a thunderstorm need to form?" Cumulus, mature, dissipating. Moisture, unstable air and a lifting force.

AIRSPACE

Clearances, special use airspace, and what you need to be up high.

8. "You call Detroit Approach and hear: 'Cherokee [tail], turn right heading 210, descend and maintain 4,000.' Can you enter the Class B?"

Short answer: No. A heading and altitude are not a Class B clearance. I need to hear the words "cleared into the Class Bravo" (91.131(a)(1)).

1. Fly the heading and altitude only if they keep me outside the Class B.
2. If they would take me in, stay out and ask: "Detroit Approach, Cherokee [tail], confirm cleared into the Class Bravo?"
3. No clearance, no entry. Turn or descend to stay clear and tell the controller what you're doing.

The trap: flight following is not a clearance either. Neither is "radar contact". Also know what you need to go in: a private pilot certificate, or a student pilot with the 61.95 endorsement for that Class B. A transponder with altitude reporting and ADS-B Out (91.215, 91.225).

Next they may ask: "What's the floor of the Class B over KONZ, and how do you depart north?" See KONZ Departures, Arrivals and the Class B.

9. "Your route goes through this restricted area. Can you fly through it right now?"

Short answer: Only if it isn't active or the controlling agency gives me permission (91.133). I find out from the chart, the NOTAMs and ATC, not by guessing.

1. **On the sectional:** find the area's number, then look it up in the special use airspace table on the chart's margin. It lists altitudes, times of use, the controlling agency and the frequency.
2. **"By NOTAM"** means check the NOTAMs. Times are often local; check the time zone note.
3. **Ask:** call the controlling agency or the ATC facility named in the table. If you're on flight following, ask the controller if it's hot.
4. **If it's active and you don't have permission,** go around it.

The trap: mixing up the kinds of special use airspace. Prohibited: never. Restricted: permission when active. MOA: no permission needed, but military training is happening, so call for traffic or avoid it. Near KONZ, the restrictions you'll actually meet are TFRs: stadium TFRs over downtown Detroit during big games, and VIP TFRs. Check them before every flight.

Next they may ask: "What about the Fermi nuclear plant?" It isn't restricted airspace, but don't circle or loiter near it, and check the NOTAMs.

10. "You want to cruise at 14,500 MSL. What do you need?"

Short answer: Supplemental oxygen, used by the required crew for the whole time above 14,000 (91.211(a)(2)). But first: our Cherokee's service ceiling is 10,950 ft. We aren't getting there.

1. **Oxygen rules (91.211):** above 12,500 up to 14,000, the crew must use it after 30 minutes. Above 14,000, the crew must use it the whole time. Above 15,000, every occupant must be provided with it.
2. **Altitude choice:** 14,500 is a VFR cruising altitude for a magnetic course of 0° to 179° (odd thousands plus 500, 91.159).
3. **Equipment:** transponder with altitude reporting and ADS-B Out above 10,000 MSL (excluding the airspace at and below 2,500 AGL) (91.215, 91.225).
4. **Airspace:** still Class E below 18,000, so the VFR minimums at or above 10,000 MSL apply: 5 miles visibility, 1,000 below, 1,000 above, 1 mile horizontal (91.155).

The trap: answering the regulation and forgetting the airplane. Tying it to our Cherokee's limits shows judgment.

Next they may ask: "What's the difference between service ceiling and absolute ceiling?" Service ceiling is where the best climb rate falls to 100 fpm. Absolute ceiling is where it falls to zero.

PERFORMANCE AND AERODYNAMICS

Will it get off the ground, how does it fly, and why does it stop flying?

11. "It's 33 °C at KONZ, the altimeter is 29.85, and you're at gross weight. Can you take off? What if the field were at 5,000 ft?"

Short answer: Work out density altitude, take it to the POH takeoff chart, add a margin and compare it with the runway. At KONZ it works easily. At a high, hot field it may not.

1. **Pressure altitude** = field elevation + (29.92 – altimeter) × 1,000 = 591 + 70 = about 660 ft.
2. **Standard temperature** at 660 ft ≈ 15 – 2 × 0.66 ≈ 14 °C. Today is 19 °C hotter.
3. **Density altitude** ≈ pressure altitude + 120 × (OAT – standard) = 660 + 120 × 19 ≈ **2,950 ft**.
4. **The chart:** use the POM takeoff chart with pressure altitude and temperature (or density altitude, depending on the chart), weight and wind. Read every note: flap setting, technique, paved and dry runway.
5. **Margin:** add at least 50% to the book number. Compare it with 4,846 ft at KONZ. Plenty.
6. **Now the high field:** a 5,000 ft field at 30 °C with 29.72 gives a pressure altitude of 5,200 and a density altitude near 8,250 ft. The book roll more than doubles and the climb rate drops to a fraction of what you're used to. Options: wait for the cool morning, take less fuel, leave a person or the bags behind.

The trap: treating the book number as what you'll get. The book is a new airplane, flown well. Grass, a wet runway, an upslope or a tailwind all make it longer. Our runway 4/22 has a slight upslope to the northeast.

Next they may ask: "What does high density altitude do to the engine, the propeller and the wing?" Less power, less thrust, and a higher true airspeed for the same indicated airspeed. The worked examples are in Performance and Weight and Balance.

12. "Explain how the wing makes lift."

Short answer: The wing meets the air at an angle of attack and turns the airflow downward. Pushing air down pushes the wing up (Newton's third law). At the same time the air speeds up over the curved top and its pressure drops, so the pressure below is higher than above (Bernoulli). Both are the same event, described two ways.

1. The lift equation shows what you control: lift depends on air density, the square of the airspeed, wing area and the coefficient of lift, which you change with angle of attack and flaps.
2. In level flight, lift equals weight. Slow down and you must raise the angle of attack to keep the same lift.
3. Bank and lift tilts. Part of it turns the airplane, so you need more total lift to hold altitude. That is load factor: 2 g at 60° of bank.

The trap: the "equal transit time" story, where air over the top must meet the air underneath at the trailing edge. It isn't true. The air over the top actually arrives first.

Next they may ask: "What is angle of attack?" The angle between the chord line and the relative wind. Not the pitch attitude.

13. "What causes a stall? How do you know one is coming, and how do you recover?"

Short answer: A stall happens when the wing exceeds its critical angle of attack, the airflow separates from the top of the wing and lift drops sharply. It can happen at any airspeed, any attitude and any power setting.

1. **Warnings in our Cherokee:** the stall warning light and horn, about 5 to 10 mph before the stall. Mushy controls, a quieter airplane, a high nose and a buffet as the airflow starts to separate.
2. **Recovery:** reduce the angle of attack (forward pressure until the warning stops), roll the wings level with coordinated aileron and rudder, add power (full power in our Cherokee), then return to the flight path you want.
3. **Stall speed goes up** with weight, bank angle and load factor, and with a forward CG. Our Cherokee stalls at 64 mph flaps up wings level, and 91 mph in a 60° bank.

The trap: "A stall is when you're too slow." Airspeed is a symptom. A hard pull at cruise speed can stall the wing too. And keep the ball centered: a stall while uncoordinated is how a spin starts.

Next they may ask: "When is a stall most dangerous?" Low and slow: the base-to-final turn, when a pilot overshoots and adds rudder and back pressure.

SYSTEMS AND EMERGENCIES

Something's wrong with the engine or the electrics. Diagnose from what you can see.

– 14. "The engine starts running rough in cruise. Walk me through it."

Short answer: Fly the airplane first: hold altitude or set up best glide at 80 mph. Then work the Cherokee's roughness flow, read the gauges to narrow down the cause, and head for the nearest suitable airport.

1. **Carb heat full on.** It gets rougher first if there's ice. Give it up to a minute.
2. **Mixture** for the smoothest running.
3. **Electric fuel pump on, then switch tanks,** in case it's fuel starvation or bad fuel in one tank.
4. **Gauges:** fuel pressure, oil pressure and temperature, RPM. Low fuel pressure points at fuel. Falling oil pressure with rising oil temperature points at the engine itself: land soon.
5. **Mags:** left, right, both. If it runs well on one, stay there at reduced power.
6. **Then:** turn toward the nearest airport, tell ATC or call on 121.5, and be ready for a power-off landing.

The trap: nobody tells you "you have carb ice." You can't see inside the carburetor. You see a slow RPM drop and feel roughness. Examiners want to hear you reason from the symptom to the likely causes. In a carbureted Cherokee on a humid Michigan day, carb ice and fuel are the first two suspects.

Next they may ask: "What conditions favor carb ice?" High humidity, about 20 °F to 70 °F, and low power settings. The full flows are on the Cherokee Flow Cards.

– 15. "The ammeter shows a discharge and the ALT light comes on. What do you do?"

Short answer: The alternator has stopped charging and everything electrical is now running on the battery. The engine keeps running on its magnetos. Try one reset, and if that fails, shed load and land at the nearest suitable airport.

1. **Confirm:** turn on a load such as the landing light and watch the ammeter.
2. **Reset once:** check the alternator breaker, ALT switch off for one second, then on.
3. **Still failed:** ALT off, turn off everything you don't need, and keep one radio and the transponder.
4. **Tell ATC now,** while you still have a radio. Inside the Detroit Mode C veil, they'll lose your transponder when the battery goes.
5. **Land** at the nearest suitable airport. How long the battery lasts depends on its condition and the load. Plan for minutes, not hours.

The trap: "It's day VFR, I'll press on." When the battery dies you lose the radios, transponder, electric fuel pump, fuel gauges, stall warning, lights and the turn coordinator. In our Cherokee the flaps are manual and the vacuum instruments keep working, so landing is normal. Know which things you keep and which you lose.

Next they may ask: "Draw the electrical system." See Aerodynamics and Aircraft Systems.

HUMAN FACTORS

Your body, your passengers' bodies and what the cabin heater can do to both.

– 16. "Your passenger's lips and fingertips are turning blue. What's going on, and what do you do?"

Short answer: Blue lips and fingernails (cyanosis) mean the blood isn't carrying enough oxygen. Assume you're affected too. Descend, and land as soon as practical. If oxygen is aboard, use it.

1. **Hypoxic hypoxia:** not enough oxygen in the air you breathe, from altitude.
2. **Hypemic hypoxia:** the blood can't carry enough oxygen. In a light airplane, carbon monoxide is the big one. Also blood loss and some anemias.
3. **Stagnant hypoxia:** the blood isn't circulating well, from high g, cold or shock.
4. **Histotoxic hypoxia:** the cells can't use the oxygen they get, from alcohol, some drugs and some poisons.

The trap: in our Cherokee, which tops out under 11,000 ft, altitude hypoxia isn't the likeliest cause. Think about carbon monoxide, especially with the heater on (question 17). A pulse oximeter can read normal with CO poisoning because it can't tell CO from oxygen on the blood.

Next they may ask: "What are the symptoms, and what's time of useful consciousness?" See Aeromedical Factors and Decision-Making.

– 17. "It's January. What's the risk of using cabin heat?"

Short answer: Carbon monoxide. Our Cherokee's heat comes from a shroud around the exhaust. A crack in the exhaust or the shroud lets CO into the cabin, and you can't see or smell it.

1. **Symptoms:** headache, drowsiness, dizziness, nausea, poor judgment. Easy to mistake for being tired or cold.
2. **If you suspect it:** cabin heat off, fresh air vents open, storm window open. Land as soon as possible, and get medical help if anyone has symptoms.
3. **Prevention:** a working CO detector in the cabin (an electronic one with an alarm is better than a spot card), and exhaust checks at every annual.
4. **It lingers:** hemoglobin holds CO more than 200 times more strongly than oxygen, so the effects can last hours after you're on the ground.

The trap: "I'd smell the exhaust." CO itself has no smell. The exhaust smell may come with it, or it may not.

Next they may ask: about winter preflight and preheat. See Winter Flying in Michigan.

18. "Your friend went wreck diving in Lake Erie this morning and wants a ride home this afternoon. They'll split the fuel 50/50. Can you take them?"

Short answer: Not this afternoon. After scuba diving, nitrogen is still dissolved in the body, and climbing to a lower pressure can bring on decompression sickness: joint pain, numbness, trouble breathing. The splitting the cost part can be fine.

1. **Wait times (AIM 8-1-2):** at least 12 hours after a dive without decompression stops, for flights up to 8,000 ft. At least 24 hours after a dive that needed decompression stops. At least 24 hours before any flight above 8,000 ft.
2. Many pilots simply wait 24 hours after any dive.
3. **Cost sharing (61.113(c)):** legal if you pay at least your pro rata share of the fuel, oil, airport fees and rental, and you share a common purpose. You need your own reason to make the trip; you can't fly just because they need a ride.

The trap: answering only the regulation. The question is mostly about the passenger's body. Asking your passengers about diving, illness and medication is part of the passenger briefing.

Next they may ask: "What's your own fitness check before a flight?" IMSAFE: illness, medication, stress, alcohol, fatigue, emotion (or eating).

LOST COMMS AND LOST

The radio stops working near a tower, or you don't know where you are.

19. "You're inbound to Willow Run (KYIP). You've called the tower three times and heard nothing. What now?"

Short answer: Keep flying the airplane and stay outside the Class D. Troubleshoot the radio. If it's truly dead, squawk 7600 and either divert to a non-towered field like home at KONZ, or join the KYIP pattern and land on a light gun signal.

1. **Troubleshoot:** frequency, volume and squelch, headset plugs and push-to-talk, the avionics switch and breakers. Try the other radio or a handheld if you have one. Try a different frequency, such as Detroit Approach.
2. **No two-way contact, no entry.** You need two-way radio communication with the tower before you enter Class D (91.129(c)). The controller has to answer with your call sign.
3. **Squawk 7600.** ATC will know the problem.
4. **Option 1, divert:** a non-towered field such as KONZ, announcing on the CTAF in case your transmitter still works.
5. **Option 2, land at KYIP:** stay outside or above the Class D, work out the runway and traffic flow, join the pattern and watch the tower for light gun signals. Remember KYIP is under the Detroit Class B: plan a route that stays below it.

The trap: not knowing the light gun signals cold. In the air: steady green, cleared to land; flashing green, return for landing; steady red, give way to other aircraft and keep circling; flashing red, airport unsafe, don't land; alternating red and green, exercise extreme caution. Acknowledge by rocking the wings in the day, or flashing the landing light or nav lights at night (91.125, AIM 4-3-13).

Next they may ask: the ground light gun signals. Steady red on the ground means stop, and flashing white means return to your starting point.

20. "Your GPS has failed and you're not sure where you are. What do you do?"

Short answer: Keep flying, don't wander, and work the problem in order: climb if it's safe, conserve fuel, communicate, confess, and comply with ATC. Meanwhile use what's still working: the chart, the VORs and the landmarks.

1. **Climb** for a better view and better radio and VOR reception. Near KONZ, check the Class B floor before you climb.
2. **Conserve:** lean the mixture, slow to an efficient speed, and work out how much time you have. Fuel decides how serious this gets.
3. **Hold your heading or circle a landmark** so you don't get more lost.
4. **Communicate:** Detroit Approach is the best bet. Flight Service, or 121.5 if you can't raise anyone.
5. **Confess:** "Cherokee [tail] is unsure of our position." ATC can find you on radar.
6. **Comply:** fly the headings and altitudes they give you.
7. **Find yourself:** two VOR radials crossed on the chart give a fix. From KONZ, Detroit (DXO) and Carleton (CRL) are close.
8. **Landmarks:** the Detroit River, the Lake Erie shoreline, I-75 and I-275, DTW's runways, the Fermi plant, downtown Detroit.

The trap: around here, east is Canada. If you're lost near the river, turn west, away from the border, before you do anything else. See The Border and Lake Erie.

Next they may ask: "Divert to KTTF from here. Give me a heading, distance and time." Practice the method in Navigation.

SOURCES

- FAA Private Pilot – Airplane Airman Certification Standards (FAA-S-ACS-6C).
- 14 CFR Parts 1, 3, 39, 43, 61 and 91, and the Aeronautical Information Manual (7-1-29 thunderstorms, 8-1-2 scuba diving, 4-3-13 light gun signals).
- Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25) and Airplane Flying Handbook (FAA-H-8083-3).
- Piper PA-28-140 Cherokee Cruiser Pilot's Operating Manual 761 555 for the airplane numbers.
- Rules and the ACS change. Check every answer against the current ACS, regulations and our airplane's POH before the checkride.

Training aid only, not flight instruction. The POH in the airplane and its placards win: check every number against them, and fly with your CFI.