

## Summary of Instrument Rating Oral Examination and Checkride

### **The Oral Exam Topics and Example Questions**

#### While Examiner Looks at the Airplane Log Books

1. What inspections are required for IFR?
2. How often does the pitot-static system need to be checked?
3. How often does the transponder need to be checked?
4. How often does the ELT need to be checked?
5. Is there anything else that needs to be checked on the airplane for IFR flight? (he wanted to know about the VORs)
6. How often do the VORs need to be checked?
7. What are the different ways you check a VOR? (VOR checkpoint on ground, air checkpoint, VOR radial along an airway, against each other, and a VOT)
8. What is the maximum deviation for each type of check?
9. What is a VOT? And how is a VOR checkpoint and a VOT different?
10. Where can you find VOR checkpoints and VOTs? (bring a paper AFD)
11. How do you know where a VOR checkpoint is on the airport? What does it look like and how is it marked?
12. Where is the VOT located on the airport?

#### Examiner Asked to See Planned Cross Country

1. When planning this route, how much fuel do you need?
2. Does that include reserves? If not, how much extra fuel do you need?
3. Do you still have to satisfy this requirement if your alternate is 150 miles away?
4. Say you fly all the way to Bedford, MA and they are busy and the airport is socked in. Your alternate is 150 miles away. What would you do if the controller said “Cardinal 177SM, proceed to the LOBBY intersection, hold as published, expect further clearance at 1515” and the current time is 1445?  
(Here, he was trying to make a point that this is a scenario that could really happen and that although you might have calculated your fuel requirement, you could spend a half hour in holding, go for the approach, miss the approach, and have to do it all over again. This would then become a fuel emergency because the half hour in holding, plus the extra 15 minutes to go missed has already eaten up your 45 minutes of reserve and it is no longer possible or practical to go to your alternate.)
5. When do you declare a 'critical fuel' situation? (he argued that if you get a “hold for half hour” clearance, that you should inform the controller right then and there that if you do that, you will be 'critical fuel' and want either priority handling or the next closest airport)
6. What does 'critical fuel' mean? Is it an emergency?
7. What determines your choice of an alternate airport?
8. What are the approach requirements for an alternate?
9. Does your alternate need to have a published approach? Why or why not?
10. Can you use Harford County Airport as an alternate?
11. What does NA mean? (Not Authorized it does NOT mean Not Applicable)

#### Looking at the Williamsport Approach Plate

1. Describe for me how you do your approach briefing
2. What are the different ways you can find the Initial approach fix?
3. If you are departing Williamsport and they say “Cardinal 177SM cleared to the Harford

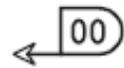
County airport, climb 2700 as published, then as filed.....” how do you climb to 2700? (departure procedures)



4. Your departing William Morse State airport and told to proceed direct CAM VOR then V123..... What does that X flag mean?
5. How are you going to climb up to 4500ft from an airport at 827 ft only 8 miles away? (he suggested that you request from ATC a hold and climb in the hold up to 4500ft)

Looking at the Enroute Charts

1. What do the following symbols mean?



What does the top number mean?

What does this number mean?

What does MEA guarantee?

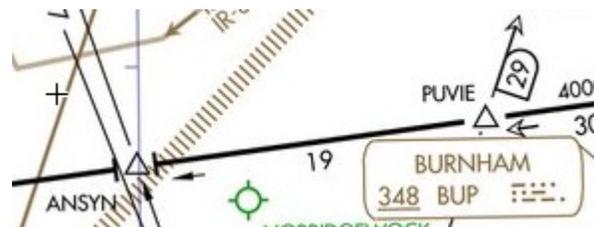


125



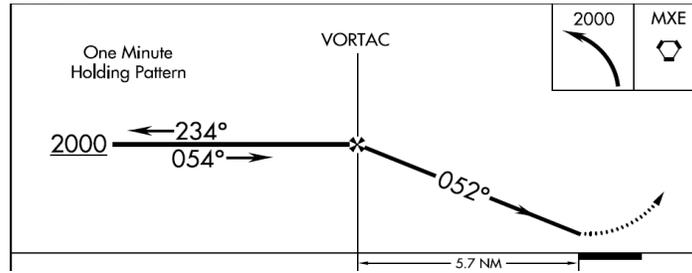
What do the blue numbers represent?

What is the difference between the bracketed intersection on the left and the non bracketed intersection on the right? What does it mean?

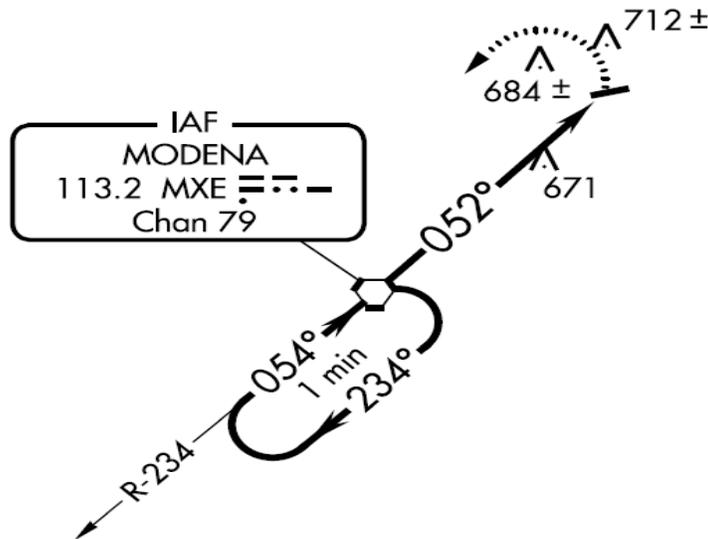


Looking at the Approach Plates

1. You are currently at 3000ft and are cleared for the VOR-A approach into Brandywine. When do you descend to 2000ft?



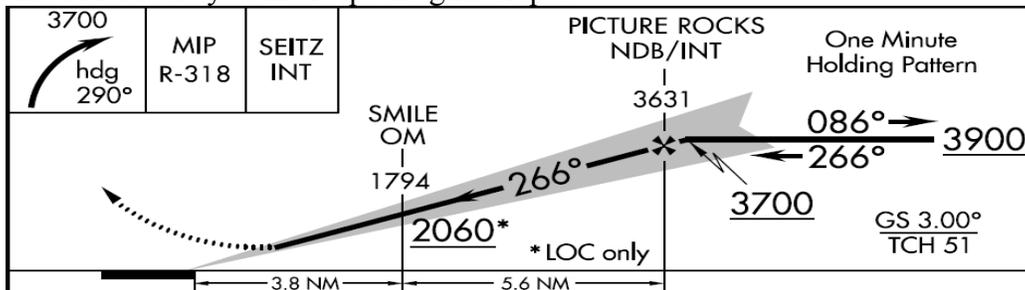
2. What type of entry would you use if your approaching from the west on a 090 heading?



3. When do you start your time outbound?
4. Once established, when do you start your descent to MDA and start your timer? (He stressed that it isn't enough to just have station passage. You must also have positive course guidance. In other words, the needle needs to come back in to less than full deflection)
5. What are the importance of these numbers?

Knots	60	90	120	150	180
Min:Sec	5:42	3:48	2:51	2:17	1:54

6. What speed do they represent?
7. At what altitude do you intercept the glideslope?



8. What is the 3631 number represent? What about 1794?
9. What is your descent angle? How do you know in terms of feet/min? Where can you find that information?
10. What does the "MIP R-318" mean?

S-LOC 27	2060-1¼ 1533 (1600-1¼)	2060-1½ 1533 (1600-1½)	2060-2½ 1533 (1600-2½)	
CIRCLING	2060-1¼ 1531 (1600-1¼)	2060-1½ 1531 (1600-1½)	2060-3 1531 (1600-3)	
SMILE OM MINIMUMS				
S-LOC 27	1340-1 813 (900-1)		1340-2 813 (900-2)	1340-2¼ 813 (900-2¼)
CIRCLING	1340-1 811 (900-1)	1460-1¼ 931 (1000-1¼)	1500-3 971 (1000-3)	

11. What does the SMILE OM Minimums mean?

### The Checkride

The checkride turned out to be a loong long ordeal of having to cancel the flying portion of the exam right after the oral, due to unforecasted weather, rescheduling again when the CDI Localizer/Glideslope stopped working and the plane went into the avionics shop, and then rescheduling again, I was ready to be done. As it turned out, my unlucky streak was not over as the day I was scheduled to take my checkride, the forecast changed to strong afternoon thunderstorms. However, Bill was very generous and offered to meet me at Chester County Airport 2 hrs earlier than I had originally scheduled.

Once I got to Chester, Bill and I sat down to make sure that all the paperwork was in order to finish the flying portion of the exam. He got on IACRA and resumed the test. We then sat down and talked about the approaches that I would be doing and what exactly the expectations were for the flying portion of the exam. Basically he just wanted to reiterate the Instrument Practical Test Standards. He told me the approaches that I would be doing and I asked if I could have 5 minutes to look over each one and to tab them with sticky notes so that I wouldn't be fumbling around in the plane trying to find them in the approach plate book. He agreed. After this, we went out to the airplane. Although I had pretty much just landed, I told him that I was going to perform a very quick pre-flight/walk around just to make sure all was OK with the plane before we took off. He said "Very good, you aren't doing anything that I wouldn't do, go right ahead!" We then got into the airplane and I got my kneeboard set up with my timer on my knee and my checklist book on my left knee. He liked the fact that I was using the checklists and reading off everything out loud.

He then told me that we would not be actually talking to ATC, but that he would play the part of ATC and that I should pretend that it is no different from the real thing. He was expecting me to make all my calls as I usually would. We taxied to the run-up area where I completed my run up and before takeoff checklists. During the radios and avionics check, I got out my first approach plate and put in all the appropriate frequencies for COM and NAV, set up the GPS with a flight plan from Chester to Modena, ILS rw 29 into Chester, New Garden, and then Chester again. This way I wouldn't have to do any GPS programming in the air. Bill didn't say anything, he just let me do my thing. From there I said to him "Philadelphia Clearance, Cardinal N177SM, requesting IFR clearance to Chester County" He gave me a simulated clearance, I copied it down and I read it back to him correctly. After that he said "Cardinal N177SM, cleared for takeoff runway 29, climb maintain runway heading for one and one half mile before turning on course" I repeated this back to him. I then made my real call to Chester traffic that I was departing runway 29 and proceeded to Taxi onto the runway. Then I hear Bill yell "STOP STOP STOP!" I stopped. He said "Always hold short of the hold short line!" and I said to him "ummm, you just said 'cleared for takeoff,' I checked base and final and made my call that I was departing" he insisted that he still wanted to see me hold short of the hold short line. I said "ok, sorry" then he said that I could go ahead and depart. This kinda broke my concentration a little.

We then proceeded to take-off and when I had reached 200ft AGL he said “my airplane, go ahead and put on your goggles” I did and then he gave me the controls back. After reaching 1.5 miles, I turned left, identified the Modena VOR, turned the OBS and proceeded toward the VOR. I made sure to tell him to check left and right for me before I made my turn. He liked that and said that he would be sure to clear me from here on out before I made any more turns. As I was heading to the VOR, he proceeded to vector me out a little ways before telling me to head direct to the Modena VOR. He had done this to see what kind of entry I was going to make into the hold. The angle that I was on was *technically* at an angle where a teardrop entry would be appropriate, however there was a 20-25 knot crosswind (go figure) and so I had about a 10-15 degree cross wind correction going and so to make things a little easier, I thought that I would just do a direct entry. Really, either entry would have been appropriate since I was on that odd, 30-ish degree angle relative to the hold at the VOR. He asked me “what type of entry are you going to use?” I said “I am doing a direct entry” He then said “are you sure about that?” not wanting to show any sign of second guessing myself or give him the idea I was unsure of myself I said, “either a teardrop entry or a direct entry into the hold would be appropriate, a direct entry is a little easier with this direction of crosswind and so I am going to do a direct entry” He said “the AIM recommends that on our present intercept heading, we should do a teardrop, I want to see you do a teardrop entry” I said “OK” and proceeded inbound. I was very methodical in my turn, time, tune, throttle, talk doing things very slowly, which he commended me on saying “many people like to rush rush and do everything real quickly, you are taking your time and being methodical, I like that, you don't want to be rushing when you are in the soup for real”. My holding went perfectly. He then vectored me to final saying “Cardinal N177SM, upon crossing the Modena VOR, turn left heading 350, maintain 2500 until established on the localizer, switch to airport advisory on 122.7, cleared for the ILS runway 29 into Chester County” I repeated this back to him and proceeded inbound. I tuned and identified the Localizer and when it came in, I proceeded inbound. Those needles never even moved. It was probably the best ILS I'd ever done.

Once we reached the DA he told me to just quick look up to see how well I did and then to go straight into the missed approach. I climbed out and turned back to the VOR totally forgetting to hit the OBS button on the GPS so it would auto sequence for the missed approach, but he didn't notice (or didn't care) since I was doing VOR navigation anyway. We then entered the hold at Modena and proceeded to do the VOR runway 24 approach back into New Garden. I made sure to not only have a TO/FROM flip on the VOR but also positive course guidance before making my decent. He said that a lot of people start their decent right after the TO/FROM flip but don't wait for positive course guidance which he says he's failed some people for depending on how they tracked inbound to the VOR. I then descended and asked him if I could just descend to pattern altitude rather than the MDA and he said he wanted to see me go down to the MDA. I then proceeded to level off the the next highest whole 100 ft above the MDA so I wouldn't bust it accidentally due to a downdraft or something. The MDA at New Garden is 940 ft, I leveled off at 1,000ft. He *did* like that though. When my timer expired he told me to look up. I had expected to see New Garden right on my nose since the needle was perfectly centered but I didn't, I had only a second or two panic attack (in my head) since I couldn't see the airport, but then I spotted it at about my 10 o'clock and 2 miles. He said “very good! Nice VOR approach, go ahead and bring it in for a full stop landing and we will get ready to depart and do some unusual attitudes” I was relieved and made a nice smooth crosswind landing. As we taxied back, I got out my next and final approach which was going to be the RNAV (GPS) rw 29 into Chester. We then departed and I once again put my goggles on at 200 ft AGL. We climbed up to 3000 ft and he said “my airplane” and I gave him the controls. He then said “put your head down and brief the GPS approach out loud to me” and I did. I could feel him maneuvering the airplane around but my briefing the approach definitely did a good job of distracting my attention from trying to follow along with his climbs, descents, and turns. He then asked me some detailed questions about the approach and asked about if it was a TAA GPS approach

and if so, how could I tell. He asked me what a TAA approach does and I explained it to him. He then said "OH NO! You were flying around in the soup and spent too much time with your head down in the approach plates! You're in an unusual attitude! Recover the airplane! You have the controls!" I was in a descending left turn and the Cardinal being the slick bird that she is was fast approaching the yellow arc. I throttled back, leveled the wings, and raised the nose. I then climbed back up to 3000ft. "Good job". He then got out two instrument covers and covered up my artificial horizon and my directional gyro and said, "OK I want you to go ahead and do the GPS approach into Chester County partial panel, Cardinal N177SM cleared for the GPS runway 29 approach into Chester County via the GOWZO transition, maintain 3000 until GOWZO". I repeated it back to him and then followed the instrument approach procedures. It was a near perfect approach. We did a full stop landing at Chester. I had passed the checkride!

After we went inside, he had made some notes about things that I did very well and things that I should be careful of when I actually start flying IFR for real. He said that the biggest thing you don't want to do is reconfigure the airplane after the final approach fix. He said I only did it the very first time during the ILS, that I had forgotten to push the prop full forward while I was in the hold and waited till the FAF but that I did it correctly the other two times. He also said that during the VOR approach, I remember to start my timer and I was doing 90 kts indicated but that I was only doing 75 knots ground speed and that I should have adjusted my time to better take that into account and that is why I arrived at the MDA early but other than that, he was very pleased to see me wait for positive course guidance before descending. He also said that since I was cleared to do the VOR approach, that I didn't need to time the one minute inbound since I would be proceeding the rest of the way inbound anyways but that was only a minor point. He just suggested that it could be a distraction in real life IFR. Other than that, he just cautioned me that yes, although I have my IFR ticket, I can legally fly IFR to minimums now, but that I should set my personal minimums much higher for now till I acquire much more real in the soup IFR time before I start doing full approaches in IFR conditions. I felt that the checkride went well and it was actually a lot of fun! Cant wait to file my first real IFR flight plan!