PRACTICE EXAM 22 SIMULATION

1. Within how many days must a VOR equipment accuracy check be completed for IFR operations?

A. 30 days

B. 60 days

C. 90 days

D. 180 days

2. What is the maximum permissible bearing error for a VOR check at a designated airborne checkpoint?

A. Plus or minus 2 degrees

B. Plus or minus 6 degrees

C. Plus or minus 8 degrees

D. Plus or minus 10 degrees

3. Within how many calendar months must the altimeter and static pressure system inspection have been completed for IFR flight?

A. 12 calendar months

B. 18 calendar months

C. 24 calendar months

D. 36 calendar months

4. Instrument currency requires the specified tasks to be accomplished within the preceding how many calendar months?

A. 3 calendar months

B. 90 days

C. 6 calendar months

D. 12 calendar months

5. How many instrument approaches must be logged within the currency period to act as PIC under IFR?

A. Six approaches

B. Three approaches

C. Eight approaches

D. Ten approaches

6. A passing score on the instrument rating knowledge test remains valid for how long?

A. 24 calendar months

B. 12 calendar months

C. 36 calendar months

D. Indefinitely

7. What minimum percentage of questions must be answered correctly to pass the IRA knowledge test?

A. 65 percent

B. 70 percent

C. 75 percent

D. 80 percent

8. What is the maximum holding airspeed for a civil aircraft at altitudes up to and including 6,000 feet MSL?

A. 175 knots indicated airspeed

B. 230 knots indicated airspeed

C. 200 knots indicated airspeed

D. 265 knots indicated airspeed

9. What is the maximum holding airspeed at altitudes above 14,000 feet MSL?

A. 265 knots indicated airspeed

B. 230 knots indicated airspeed

C. 250 knots indicated airspeed

D. 200 knots indicated airspeed

10. At or below 14,000 feet MSL, what is the standard inbound holding leg time?

A. 30 seconds

B. 2 minutes

C. 1.5 minutes

D. 1 minute

11. A standard-rate turn changes the aircraft's heading at what rate?

A. 1.5 degrees per second

B. 6 degrees per second

C. 4.5 degrees per second

D. 3 degrees per second

12. How long does a standard-rate turn take to complete a full 360-degree turn?

A. 1 minute

B. 2 minutes

C. 3 minutes

D. 4 minutes

13. Under the IFR fuel requirement, how many minutes of additional flight at normal cruising speed must be carried as reserve beyond the destination and any required alternate?

A. 30 minutes

B. 45 minutes

C. 60 minutes

D. 20 minutes

14. Under the 1-2-3 rule, an alternate is not required if the forecast ceiling at the destination is at least what value during the required window?

A. 1,000 feet

B. 1,500 feet

C. 2,000 feet

D. 3,000 feet

15. Under the 1-2-3 rule, what minimum forecast visibility at the destination removes the alternate requirement?

A. 3 statute miles

B. 2 statute miles

C. 1 statute mile

D. 5 statute miles

16. What time window does the 1-2-3 rule apply to around the estimated time of arrival?

A. 30 minutes before to 30 minutes after

B. 1 hour before to 1 hour after

C. 2 hours before to 2 hours after

D. 3 hours before to 3 hours after

17. For an alternate airport with a precision approach available, what is the standard alternate minimum ceiling?

A. 400 feet

B. 600 feet

C. 800 feet

D. 1,000 feet

18. For an alternate airport with only a non-precision approach available, what are the standard alternate minimums?

A. 600 feet and 1 statute mile

B. 600 feet and 2 statute miles

C. 800 feet and 2 statute miles

D. 1,000 feet and 3 statute miles

19. The MOCA guarantees navigation signal coverage only within what distance of the VOR?

A. 10 nautical miles

B. 15 nautical miles

C. 18 nautical miles

D. 22 nautical miles

20. A standard temperature lapse rate in the lower atmosphere is approximately what value per 1,000 feet?

A. 1 degree Celsius

B. 1.5 degrees Celsius

C. 2 degrees Celsius

D. 3 degrees Celsius

21. What is the maximum permissible bearing error for a VOR check at a designated ground checkpoint?

A. Plus or minus 4 degrees

B. Plus or minus 6 degrees

C. Plus or minus 8 degrees

D. Plus or minus 2 degrees

22. What is the maximum permissible difference between two receivers in a dual-VOR cross-check?

A. 2 degrees

B. 4 degrees

C. 6 degrees

D. 8 degrees

23. A 3-degree glide path descends approximately how many feet per nautical mile?

A. 150 feet per nautical mile

B. 200 feet per nautical mile

C. 250 feet per nautical mile

D. 300 feet per nautical mile

24. Above 14,000 feet MSL, the standard inbound holding leg time is how long?

A. 1 minute

B. 2 minutes

C. 1.5 minutes

D. 45 seconds

25. What transponder code indicates a two-way radio communication failure?

A. 7500

B. 7700

C. 1200

D. 7600

26. What transponder code indicates a general in-flight emergency?

A. 7700

B. 7600

C. 7500

D. 1200

27. What is the maximum holding airspeed in the altitude tier from 6,001 through 14,000 feet MSL?

A. 230 knots indicated airspeed

B. 200 knots indicated airspeed

C. 265 knots indicated airspeed

D. 175 knots indicated airspeed

28. A pilot must hold at least which certificate to be eligible for an instrument rating in airplanes?

A. A sport pilot certificate

B. A recreational pilot certificate

C. A private pilot certificate

D. A commercial pilot certificate

29. Approximately how many hours of cross-country flight time as pilot in command are required for the instrument rating?

A. 50 hours

B. 40 hours

C. 25 hours

D. 75 hours

30. Approximately how many hours of instrument time (actual or simulated) are required for the instrument rating?

A. 50 hours

B. 40 hours

C. 30 hours

D. 20 hours

31. A standard-rate turn corresponds to a half-standard rate of what value?

A. 1.5 degrees per second

B. 3 degrees per second

C. 0.75 degrees per second

D. 6 degrees per second

32. An ILS glide slope is typically set at approximately what angle?

A. 1.5 degrees

B. 2 degrees

C. 4.5 degrees

D. 3 degrees

33. A pilot decoding a winds-aloft direction value exceeding 36 must subtract what amount from the direction?

A. 100

B. 36

C. 10

D. 50

34. When decoding a high-speed winds-aloft group, how much is added to the two-digit speed value?

A. 50

B. 100

C. 150

D. 200

35. What is the time, in minutes, to fly 30 nautical miles at a groundspeed of 90 knots?

A. 20 minutes

B. 15 minutes

C. 25 minutes

D. 30 minutes

36. A METAR cloud height of "OVC025" represents an overcast layer at what height?

A. 25 feet AGL

B. 250 feet AGL

C. 25,000 feet MSL

D. 2,500 feet AGL

37. The minimum age to take the instrument rating knowledge test is what?

A. 18 years

B. 17 years

C. 16 years

D. 15 years

38. A pilot computes that 84 nautical miles at a groundspeed of 112 knots takes how long?

A. 45 minutes

B. 50 minutes

C. 60 minutes

D. 40 minutes

39. What is the time limit allotted for the IRA knowledge test?

A. 1 hour

B. 1.5 hours

C. 2 hours

D. 2.5 hours

40. How many questions are on the FAA Instrument Rating – Airplane knowledge test?

A. 50 questions

B. 60 questions

C. 70 questions

D. 100 questions

41. To pass the 60-question IRA test at 70 percent, how many questions must be answered correctly?

A. 42 questions

B. 45 questions

C. 48 questions

D. 40 questions

42. A TEMPO group in a TAF indicates conditions expected to last less than what fraction of the stated window in total?

A. One-quarter

B. One-half

C. Two-thirds

D. The entire window

43. A crosswind component on a runway with a 30-degree wind angle and a 20-knot wind is approximately what (sine 30° = 0.5)?

A. 17 knots

B. 14 knots

C. 20 knots

D. 10 knots

44. The maximum holding airspeed decreases to which value at the lowest altitude tier (up to 6,000 feet)?

A. 265 knots

B. 230 knots

C. 200 knots

D. 175 knots

45. A pilot must compute fuel for 2.0 hours to the destination plus a 45-minute reserve, with no alternate required, at 12 gph. What is the minimum fuel?

A. About 24 gallons

B. About 27 gallons

C. About 33 gallons

D. About 39 gallons

46. A pilot covering ground at 2 nautical miles per minute needs what descent rate to hold a 3-degree path (using about 300 feet per nautical mile)?

A. About 600 feet per minute

B. About 300 feet per minute

C. About 450 feet per minute

D. About 900 feet per minute

47. A METAR altimeter group "A2992" represents a setting of what value?

A. 29.92 millibars

B. 2,992 feet

C. 29.92 degrees

D. 29.92 inches of mercury

48. The decision altitude minus the touchdown zone elevation gives what quantity?

A. The minimum descent altitude

B. The height above touchdown

C. The minimum safe altitude

D. The threshold crossing height

49. A pilot flies 150 knots true airspeed with no wind. How far is covered in 4 minutes?

A. About 6 nautical miles

B. About 12 nautical miles

C. About 15 nautical miles

D. About 10 nautical miles

50. A pilot must reach a charted minimum crossing altitude before crossing a fix where terrain rises. By how much, at minimum, does an MSA circle provide obstacle clearance within its sector?

A. 500 feet

B. 750 feet

C. 2,000 feet

D. 1,000 feet

51. A pilot computes time to a fix 45 nautical miles away at a groundspeed of 108 knots. How long is required?

A. 15 minutes

B. 25 minutes

C. 20 minutes

D. 30 minutes

52. The half-standard-rate turn changes heading at what rate, used at higher speeds?

A. 3 degrees per second

B. 1.5 degrees per second

C. 0.5 degrees per second

D. 6 degrees per second

53. A pilot decodes a winds-aloft group "7345." After the high-speed convention, what is the wind?

A. From 073 degrees at 45 knots

B. From 073 degrees at 145 knots

C. From 230 degrees at 145 knots

D. From 230 degrees at 45 knots

54. A pilot needs the time to fly 60 nautical miles at a groundspeed of 120 knots. What is it?

A. 20 minutes

B. 40 minutes

C. 30 minutes

D. 45 minutes

55. A pilot at FL160 in a hold uses what standard inbound leg time?

A. 1 minute

B. 45 seconds

C. 2 minutes

D. 1.5 minutes

56. A pilot must lose 6,000 feet at 500 feet per minute while covering 3 nautical miles per minute. How far before level-off should the descent begin?

A. 18 nautical miles

B. 24 nautical miles

C. 36 nautical miles

D. 48 nautical miles

57. A pilot computes a required climb rate for a 300-foot-per-nautical-mile gradient at a groundspeed of 120 knots (2 nautical miles per minute). What rate is needed?

A. About 300 feet per minute

B. About 450 feet per minute

C. About 600 feet per minute

D. About 900 feet per minute

58. The maximum holding airspeed at 9,000 feet MSL is what value?

A. 200 knots

B. 230 knots

C. 265 knots

D. 175 knots

59. A pilot computes that 96 nautical miles at a groundspeed of 128 knots takes how long?

A. 45 minutes

B. 50 minutes

C. 60 minutes

D. 75 minutes

60. The standard alternate minimum visibility, for either a precision or non-precision approach, is what value?

A. 1 statute mile

B. 2 statute miles

C. 3 statute miles

D. 5 statute miles

+ Answer Key

1. A — A VOR accuracy check for IFR use must be completed within the preceding 30 days. This short cycle reflects how quickly navigation precision can drift. It contrasts with the 24-month altimeter/static and transponder checks.

2. B — The maximum permissible bearing error at a designated airborne checkpoint is ±6 degrees. VOT and ground checkpoints allow ±4 degrees, and a dual-VOR check allows a 4-degree difference. The airborne checkpoint is the most lenient.

3. C — The altimeter and static pressure system inspection must be completed within the preceding 24 calendar months for IFR flight. The same 24-month interval applies to the transponder check. These are far longer cycles than the 30-day VOR check.

4. C — Instrument currency requires the specified tasks within the preceding 6 calendar months. These are the six approaches, holding, and intercepting and tracking courses. The six-month window and the six approaches share a digit but are distinct facts.

5. A — Six instrument approaches must be logged within the currency period to act as PIC under IFR. Holding and intercepting and tracking courses are also required. All must fall within the preceding six calendar months.

6. A — A passing IRA knowledge test score is valid for 24 calendar months, within which the practical test must be completed. The rating itself does not expire, but the written result does. Letting it lapse means retaking the knowledge test.

7. B — The minimum passing score on the IRA knowledge test is 70 percent. On a 60-question test that is 42 correct. There is no curve or partial credit.

8. C — The maximum holding airspeed up to and including 6,000 feet MSL is 200 KIAS. It rises to 230 KIAS from 6,001 to 14,000 feet and 265 KIAS above 14,000 feet. Slowing before the fix keeps the aircraft within protected airspace.

9. A — The maximum holding airspeed above 14,000 feet MSL is 265 KIAS. The lower tiers are 200 up to 6,000 feet and 230 from 6,001 to 14,000 feet. This altitude is in the highest tier.

10. D — At or below 14,000 feet MSL the standard inbound holding leg is 1 minute. Above 14,000 feet it becomes 1.5 minutes. The pilot times the inbound leg and adjusts the outbound leg.

11. D — A standard-rate turn changes heading at 3 degrees per second. This completes a 360-degree turn in two minutes. Half-standard rate is 1.5 degrees per second.

12. B — A standard-rate turn completes a full 360-degree turn in 2 minutes, at 3 degrees per second. It is not one or three minutes. This figure underlies holding timing and procedure turns.

13. B — The IFR fuel reserve is 45 minutes at normal cruising speed, beyond destination and any required alternate fuel. The 30-minute figure is day VFR. The 45-minute reserve is always required under IFR.

14. C — Under the 1-2-3 rule, no alternate is required if the forecast ceiling is at least 2,000 feet during the window. The visibility must also be at least 3 statute miles. Both thresholds must be met.

15. A — The 1-2-3 rule requires a minimum forecast visibility of 3 statute miles to remove the alternate requirement. The ceiling must also be at least 2,000 feet. Failing either part requires an alternate.

16. B — The 1-2-3 rule applies to the window from 1 hour before to 1 hour after the estimated time of arrival. The forecast must meet the ceiling and visibility thresholds throughout that window. This is the "1" in 1-2-3.

17. B — For an alternate with a precision approach available, the standard alternate minimum ceiling is 600 feet (with 2 statute miles visibility). The 800-foot figure applies to non-precision-only alternates. These apply unless non-standard minimums are published.

18. C — For an alternate with only a non-precision approach, the standard alternate minimums are 800 feet and 2 statute miles. The 600-2 figure applies to a precision approach. These standard values apply absent published non-standard minimums.

19. D — The MOCA guarantees navigation signal coverage only within 22 nautical miles of the VOR. It guarantees obstacle clearance for the whole segment but not signal coverage beyond 22 NM. The MEA, by contrast, assures both for the entire segment.

20. C — The standard temperature lapse rate in the lower atmosphere is approximately 2 degrees Celsius per 1,000 feet. Departures from this, especially inversions, drive much weather. It is roughly 3.5°F per 1,000 feet.

21. A — The maximum permissible bearing error at a designated ground checkpoint is ±4 degrees. The airborne checkpoint allows ±6 degrees, and a dual-VOR check allows a 4-degree difference. The ground and VOT checks share the ±4 tolerance.

22. B — A dual-VOR cross-check permits a maximum difference of 4 degrees between the two receivers. VOT and ground checks allow ±4 degrees of error, and airborne checks ±6. The dual-VOR figure is a 4-degree difference between receivers.

23. D — A 3-degree glide path descends approximately 300 feet per nautical mile. This rule of thumb underlies stabilized-approach planning. The descent rate scales with groundspeed for that fixed path angle.

24. C — Above 14,000 feet MSL the standard inbound holding leg is 1.5 minutes. At or below 14,000 feet it is 1 minute. The 14,000-foot break governs holding leg timing.

25. D — Squawk 7600 indicates a two-way radio communication failure. 7700 is a general emergency, 7500 is unlawful interference, and 1200 is VFR. Setting 7600 alerts ATC to the failure.

26. A — Squawk 7700 indicates a general in-flight emergency. 7600 is lost communication, 7500 is unlawful interference, and 1200 is VFR. Setting 7700 unlocks ATC's full assistance and priority.

27. A — The maximum holding airspeed from 6,001 through 14,000 feet MSL is 230 KIAS. The tier below is 200 KIAS and above is 265 KIAS. This is the middle tier.

28. C — A private pilot certificate is the minimum required to be eligible for an instrument rating in airplanes (or the applicant may apply concurrently). Sport and recreational certificates do not qualify, and a commercial certificate is not required. The rating is an addition to an existing certificate.

29. A — Approximately 50 hours of cross-country flight time as pilot in command are required for the instrument rating, at least 10 of which must be in airplanes. The 40-hour figure is the instrument time requirement. These two numbers are commonly confused.

30. B — Approximately 40 hours of instrument time (actual or simulated) are required for the instrument rating. The 50-hour figure is the cross-country PIC requirement. The instrument time specifically covers flying by reference to instruments.

31. A — A half-standard-rate turn changes heading at 1.5 degrees per second, half of the 3-degrees-per-second standard rate. It is used at higher speeds where a full standard rate would demand excessive bank. The standard rate is 3 degrees per second.

32. D — An ILS glide slope is typically set at approximately 3 degrees, descending to the touchdown zone. This yields a manageable descent rate at typical approach speeds. It pairs with the localizer for lateral guidance.

33. D — When the decoded winds-aloft direction exceeds 36, the convention is to subtract 50 from the direction (and add 100 to the speed). This encodes winds of 100–199 knots. Subtracting 50 recovers the true direction.

34. B — In the high-speed winds-aloft convention, 100 is added to the two-digit speed value (and 50 subtracted from the direction). This recovers winds of 100–199 knots. The convention fits high winds into the format.

35. A — Time equals distance divided by groundspeed: 30 NM ÷ 90 knots = 0.333 hour = 20 minutes. At 90 knots the aircraft covers 1.5 NM per minute. Thirty miles takes 20 minutes.

36. D — "OVC025" represents an overcast layer at 2,500 feet AGL, since METAR cloud heights are in hundreds of feet above ground level. It is not 25 feet, 250 feet, or an MSL value. Being overcast, it constitutes the ceiling.

37. D — The minimum age to take the instrument rating knowledge test is 15. The rating's other requirements include the certificate and experience minimums. Fifteen is the age threshold for the written test.

38. A — Time equals distance divided by groundspeed: 84 NM ÷ 112 knots = 0.75 hour = 45 minutes. Forecast groundspeed already accounts for wind. This supports ETE and fuel planning.

39. D — The IRA knowledge test allots 2.5 hours (2 hours 30 minutes). The test contains 60 questions. Budgeting time around figure questions is important.

40. B — The FAA Instrument Rating – Airplane knowledge test contains 60 questions. The passing score is 70 percent, or 42 correct. The time limit is 2.5 hours.

41. A — Passing the 60-question test at 70 percent requires 42 correct answers (0.70 × 60 = 42). There is no partial credit. Aiming higher than the minimum absorbs test-day variability.

42. B — A TEMPO group denotes temporary fluctuations expected to total less than half the stated window (and last under an hour each). It is not a quarter, two-thirds, or the entire window. TEMPO interrupts rather than replaces the prevailing forecast.

43. D — Crosswind component equals wind speed times the sine of the angle: 20 knots × sin(30°) = 20 × 0.5 = 10 knots. The 30-degree angle yields half the wind as crosswind. This supports runway and limitation decisions.

44. C — The maximum holding airspeed at the lowest tier, up to 6,000 feet, is 200 knots. It rises to 230 from 6,001 to 14,000 feet and 265 above 14,000 feet. The lowest tier carries the lowest limit.

45. C — With no alternate required, fuel is destination plus reserve: 2.0 + 0.75 = 2.75 hours × 12 gph = 33 gallons. The 45-minute (0.75-hour) reserve is always required under IFR. About 33 gallons covers destination and reserve.

46. A — Descent rate equals gradient times groundspeed in NM per minute: ~300 ft/NM × 2 NM/min = 600 feet per minute. A 3-degree path at this groundspeed needs about 600 fpm. The rate scales with groundspeed.

47. D — "A2992" represents an altimeter setting of 29.92 inches of mercury, prefixed by "A." It is not millibars, feet, or degrees. The setting is entered in the Kollsman window.

48. B — Decision altitude minus touchdown zone elevation gives the height above touchdown (HAT). It is the height at which the land-or-go-missed decision is made on a precision approach. It is not the MDA, MSA, or threshold crossing height.

49. D — Distance equals speed times time: 150 knots × (4 ÷ 60) hour = 10 nautical miles. At 150 knots the aircraft covers 2.5 NM per minute. Four minutes yields 10 NM.

50. D — An MSA circle provides at least 1,000 feet of obstacle clearance within its depicted sector, typically within 25 NM of a reference fix. It is an emergency terrain-clearance reference. The 1,000-foot figure is the guaranteed clearance.

51. B — Time equals distance divided by groundspeed: 45 NM ÷ 108 knots = 0.4167 hour, which is 25 minutes. At 108 knots the aircraft covers 1.8 NM per minute, so 45 NM takes 25 minutes. Forecast groundspeed already accounts for wind, supporting accurate ETE and fuel planning.

52. B — A half-standard-rate turn changes heading at 1.5 degrees per second, used at higher speeds to avoid excessive bank. The standard rate is 3 degrees per second. Half-standard is exactly half that rate.

53. C — Direction digits exceeding 36 trigger the high-speed convention: 73 − 50 = 23 (230°) and 45 + 100 = 145 knots, giving wind from 230° at 145 knots. The convention encodes winds of 100–199 knots. The decoded direction over 36 is the cue.

54. C — Time equals distance divided by groundspeed: 60 NM ÷ 120 knots = 0.5 hour = 30 minutes. At 120 knots the aircraft covers 2 NM per minute. Sixty miles takes 30 minutes.

55. D — Above 14,000 feet MSL the standard inbound holding leg is 1.5 minutes; FL160 (16,000 feet) is above 14,000 feet. At or below 14,000 feet the leg is 1 minute. The 14,000-foot break governs the timing.

56. C — Time to lose 6,000 feet at 500 ft/min is 12 minutes, and at 3 NM/min that is 36 nautical miles. The descent must begin 36 NM before level-off. Top-of-descent planning prevents rushed descents.

57. C — Required climb rate equals gradient times groundspeed in NM per minute: 300 ft/NM × 2 NM/min = 600 feet per minute. At 120 knots the aircraft covers 2 NM each minute. A 300-ft/NM gradient needs 600 fpm.

58. B — At 9,000 feet MSL the aircraft is in the 6,001–14,000 foot tier, where the maximum holding airspeed is 230 KIAS. The tiers are 200 up to 6,000, 230 to 14,000, and 265 above. This altitude is in the middle tier.

59. A — Time equals distance divided by groundspeed: 96 NM ÷ 128 knots = 0.75 hour = 45 minutes. Forecast groundspeed already accounts for wind. This supports ETE and fuel planning.

60. B — The standard alternate minimum visibility is 2 statute miles for both precision (600-2) and non-precision (800-2) approaches; only the ceiling differs between them. The visibility component is the common value. These apply unless non-standard minimums are published.