

Navigation

TEST PREP

1

What procedure is recommended when climbing or descending VFR on an airway?

- a. Advise the nearest FSS of the altitude changes.
- b. Fly away from the centerline of the airway before changing altitude.
- c. **Execute gentle banks, left and right for continuous visual scanning of the airspace.**

2

During flight, when are the indications of a magnetic compass accurate?

- a. As long as the airspeed is constant.
- b. **Only in straight-and-level unaccelerated flight.**
- c. During turns if the bank does not exceed 18°.

3

What should be the indication on the magnetic compass as you roll into a standard rate turn to the right from a south heading in the Northern Hemisphere?

- a. The compass will initially indicate a turn to the left.
- b. The compass will remain on south for a short time, then gradually catch up to the magnetic heading of the airplane.
- c. **The compass will indicate a turn to the right, but at a faster rate than is actually occurring.**

4

A global positioning system will give your exact geographical position:

- a. only in the northern hemisphere.
- b. only at any point in the contiguous States.
- c. **at any point on the globe.**

5

What code should a pilot set their transponder to when flying VFR?

- a. **3/A Code 1200**
- b. 3/A Code 2400
- c. 3/A Code 1400

6

In the Northern Hemisphere, if an aircraft is accelerated or decelerated, the magnetic compass will normally indicate

- a. a turn toward the south.
- b. a turn momentarily.
- c. **correctly when on a north or south heading.**

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On a cross-country flight, point A is crossed at 1500 hours and the plan is to reach point B at 1530 hours. Use the following information to determine the airspeed required to reach point B on schedule.

Distance between A and B	70 NM
Forecast wind	310° at 15 kts
Pressure altitude	8,000 ft
Ambient temperature	-10° C
True course	270°

- a. **137 knots.**
- b. 152 knots.
- c. 126 knots.

8

Deviation in a magnetic compass is caused by the

- a. **magnetic fields within the aircraft distorting the lines of magnetic force.**
- b. difference in the location between true north and magnetic north.
- c. presence of flaws in the permanent magnets of the compass.

9

You are flying on an easterly course. If the wind is from the northeast, you must crab the airplane:

- a. South of east to counteract drift.
- b. **Somewhat to the north of east to counteract drift.**
- c. North to counteract torque.

10

In order to determine your distance flown, you would multiply time by:

- a. Indicated airspeed.
- b. **Groundspeed.**
- c. Equivalent airspeed.

11

How can you get in-flight weather updates for your destination airport while still 150 - 200 miles away?

- a. **Retrieve the latest METAR and TAF using FIS-B.**
- b. Contact Flight Watch for an update.
- c. Tune in the ATIS for the destination airport.

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ATC advises, "traffic 2 o'clock." This advisory is relative to your:

- a. true course.
- b. **ground track.**
- c. magnetic heading.

13

How many GPS satellites are required to provide a three-dimensional position?

- a. 6
- b. 5
- c. **4**

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If Receiver Autonomous Integrity Monitoring (RAIM) capability is lost in-flight,

- a. The pilot may still rely on GPS derived altitude for vertical information.
- b. **The pilot has no assurance of the accuracy of the GPS position.**
- c. GPS position is reliable provided at least 3 GPS satellites are available.

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On a turn from south:

- a. The compass will lag behind the airplane.
- b. **The compass exaggerates the rate of turn.**
- c. The compass will match the exact heading.

16

Basic radar service in the terminal radar program is best described as

- a. mandatory radar service provided by the Automated Radar Terminal System (ARTS) program.
- b. wind-shear warning at participating airports.
- c. **safety alerts, traffic advisories, and limited vectoring to VFR aircraft**

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When squawking the VFR code (1200) on your transponder, what is the minimum mode the transponder must be in?

- a. Mode F.
- b. Mode C.
- c. **Mode A.**

18

In the Northern Hemisphere, the magnetic compass will normally indicate a turn toward the south when

- a. a left turn is entered from an east heading.
- b. a right turn is entered from a west heading.
- c. **the aircraft is decelerated while on a west heading.**

19

What is a limitation of using a GPS without RAIM capability?

- a. **The pilot would not be alerted that the navigation solution had deteriorated and an undetected navigation error could occur.**
- b. The GPS should not be used for long-distance navigation.
- c. Navigation accuracy would be continuously degraded.

20

If you are on a cross-country flight, to keep from losing your course you should:

- a. File a flight plan with ATC.
- b. Fly your planned heading.
- c. **Refer to selected ground features and checkpoints.**

21

As Pilot in Command of an aircraft, under which situation can you deviate from an ATC clearance?

- a. If an ATC clearance is not understood and in VFR conditions.
- b. When operating in Class A airspace at night.
- c. **In response to a traffic alert and collision avoidance system resolution advisory.**

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Unless otherwise authorized, which situation requires Automatic Dependent Surveillance-Broadcast (ADS-B)?

- a. Flying under the shelf of Class C airspace.
- b. **Overflying Class C airspace below 10,000 feet MSL.**
- c. Landing at an airport with an operating control tower.

23

Can you fly VFR with an expired GPS database?

- a. No, a current GPS database is required when using it for any type of navigation guidance.
- b. No, since a GPS will not function without a current GPS database.
- c. **Yes, but disregard the moving map display when making critical navigation decisions.**

24

There is no acceleration/deceleration error on a heading of:

- a. 240 degrees or 60 degrees.
- b. East or west.
- c. **North or south.**

25

If a true heading of 135° results in a ground track of 130° and a true airspeed of 135 knots results in a groundspeed of 140 knots, the wind would be from

- a. **245° and 13 knots.**
- b. 019° and 12 knots.
- c. 200° and 13 knots.

24

How far will an aircraft travel in 7.5 minutes with a ground speed of 114 knots?

- a. 14.5 NM.
- b. 15 NM.
- c. **14.25 NM.**

25

At the beginning of a turn from a northerly heading:

- a. **The compass will show a turn in the opposite direction.**
- b. The compass will lead the turn.
- c. The compass will show the correct heading.

26

When flying through the lateral and vertical boundaries of Class C or B airspace, what additional equipment is your aircraft required to have installed, if any?

- a. **ADS-B Out equipment.**
- b. TCAS System.
- c. Mode C Transponder

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What should pilots keep in mind when using a portable GPS for navigation?

- a. Waypoint accuracy does not depend on database currency.
- b. RAIM services are always required.
- c. **Loss of position accuracy with no warning.**

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Which is true regarding the benefits of using GPS for navigation?

- a. GPS eliminates the need for the pilot to verify their location through other navigation sources or charts.
- b. Pilots can depend on GPS signals being available 100% of the time for navigation.
- c. **While GPS has many benefits to the VFR pilot, care must be exercised to ensure that system capabilities are not exceeded.**

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How can a pilot use GPS altitude in flight?

- a. GPS altitude should only be used in IFR conditions.
- b. GPS altitude can be used as a primary altitude indicator.
- c. **GPS should not be used as a primary source of altitude data.**

30

You want your wind ground track and _____ to be the same.

- a. Drift angle.
- b. **Course.**
- c. Heading.

31

An ATC radar facility issues the following advisory to a pilot flying north in a calm wind:

"TRAFFIC 9 O'CLOCK, 2 MILES, SOUTHBOUND..."

Where should the pilot look for this traffic?

- a. North.
- b. **West.**
- c. South.

32

If your GPS receiver is equipped with WAAS—Wide Area Augmentation System—your position accuracy is:

- a. Twelve meters.
- b. Five meters.
- c. **Less than three meters.**

33

The magnetic compass:

- a. Needs vacuum power to work.
- b. Needs electrical current to operate.
- c. **Is self powered.**

34

In order to check your progress when using dead reckoning with no radio instrumentation, make corrections by:

- a. Using the magnetic compass and the airspeed indicator.
- b. Determining position using the wind triangle.
- c. **Using pilotage and keep track of your checkpoints.**

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An ATC radar facility issues the following advisory to a pilot flying on a heading of 360°:

"TRAFFIC 10 O'CLOCK, 2 MILES, SOUTHBOUND..."

Where should the pilot look for this traffic?

- a. Southwest.
- b. Northeast.
- c. **Northwest.**

36

What should you do if your GPS database is out of date?

- a. You cannot legally fly with a GPS if its navigation database is out of date.
- b. Avoid flying into IMC conditions.
- c. **The flight plan waypoints should be verified against a current official source, like a VFR Sectional Chart or Chart Supplement U.S.**

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With certain exceptions, all aircraft within 30 miles of a Class B primary airport from the surface upward to 10,000 feet MSL must be equipped with

- a. **an operable transponder having either Mode S or 4096-code capability with Mode C automatic altitude reporting capability, and ADS-B out equipment.**
- b. an operable VOR or TACAN receiver and an ADF receiver.
- c. instruments and equipment required for IFR operations.

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The angular difference between true north and magnetic north is

- a. compass acceleration error.
- b. **magnetic variation.**
- c. magnetic deviation.

39

On a turn from a northerly heading the compass will:

- a. Will lead the airplane.
- b. Be equal to the airplane's heading.
- c. **Lag behind the airplane.**

40

ADS-B Out equipment is required when flying:

- a. Below 10,000' MSL in Class E airspace over the contiguous U.S.
- b. **In Class E airspace at and above 3,000' MSL over the Gulf of Mexico from the U.S. coastline out to 12 NM.**
- c. In Class E airspace at the surface.

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When an air traffic controller issues radar traffic information in relation to the 12-hour clock, the reference the controller uses is the aircraft's

- a. true course.
- b. **ground track.**
- c. magnetic heading.

42

The only north seeking instrument in a typical training airplane is:

- a. The heading indicator.
- b. **The magnetic compass.**
- c. The attitude indicator.

43

Deviation error of the magnetic compass is caused by

- a. northerly turning error.
- b. **certain metals and electrical systems within the aircraft.**
- c. the difference in location of true north and magnetic north.

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An ATC radar facility issues the following advisory to a pilot during a local flight:

"TRAFFIC 2 O'CLOCK, 5 MILES, NORTHBOUND..." Where should the pilot look for this traffic?

- a. Between directly behind and 90° to the right.
- b. **Between directly ahead and 90° to the right.**
- c. Between directly ahead and 90° to the left.

45

An operable 4096-code transponder, Mode C encoding altimeter, and ADS-B-Out are required in

- a. Class D airspace.
- b. **Class B airspace and within 30 miles of the Class B primary airport.**
- c. Class E airspace below 10,000 feet MSL.

46

In the Northern Hemisphere, a magnetic compass will normally indicate a turn toward the north if

- a. an aircraft is decelerated while on an east or west heading.
- b. a left turn is entered from a west heading.
- c. **an aircraft is accelerated while on an east or west heading.**

47

Aircraft within 30 miles of a Class B primary airport from the surface upward to 10,000 feet MSL must be equipped with:

- a. **An operable transponder having either Mode S or 4096-code capability with Mode C automatic altitude reporting capability, and ADS-B Out.**
- b. An operable VOR or TACAN receiver and an ADF receiver.
- c. Instruments and equipment required for IFR operations.

48

In the Northern Hemisphere, a magnetic compass will normally indicate initially a turn toward the west if

- a. a left turn is entered from a north heading.
- b. **a right turn is entered from a north heading.**
- c. an aircraft is accelerated while on a north heading.

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When the course deviation indicator (CDI) needle is centered during an omnireceiver check using a VOR test signal (VOT), the omnibearing selector (OBS) and the TO/FROM indicator should read

- a. **0° FROM or 180° TO, regardless of the pilot's position from the VOT.**
- b. 0° TO or 180° FROM, regardless of the pilot's position from the VOT.
- c. 180° FROM, only if the pilot is due north of the VOT.

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In the Northern Hemisphere, a magnetic compass will normally indicate initially a turn toward the east if

- a. an aircraft is accelerated while on a north heading.
- b. **a left turn is entered from a north heading.**
- c. an aircraft is decelerated while on a south heading.

51

Which of the following avionics equipment is required to be installed in your airplane to fly in Class A airspace?

- a. **ADS-B Out equipment.**
- b. ADS-B In equipment.
- c. Datalink weather.

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A VOR test facility—VOT—transmits a:

- a. 180 degree radial in all directions.
- b. **360 degree radial in all directions.**
- c. 360 degree radial to a designated position on the airport.

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An operable 4096-code transponder with an encoding altimeter and ADS-B Out are required in which airspace?

- a. **Class A, Class B (and within 30 miles of the Class B primary airport), and Class C.**
- b. Class D and Class G (below 10,000 feet MSL).
- c. Class D and Class E (below 10,000 feet MSL).