02/05/2026

Quiz

Principles of Flight

Question 1

1. What are the standard temperature and pressure values for sea level?

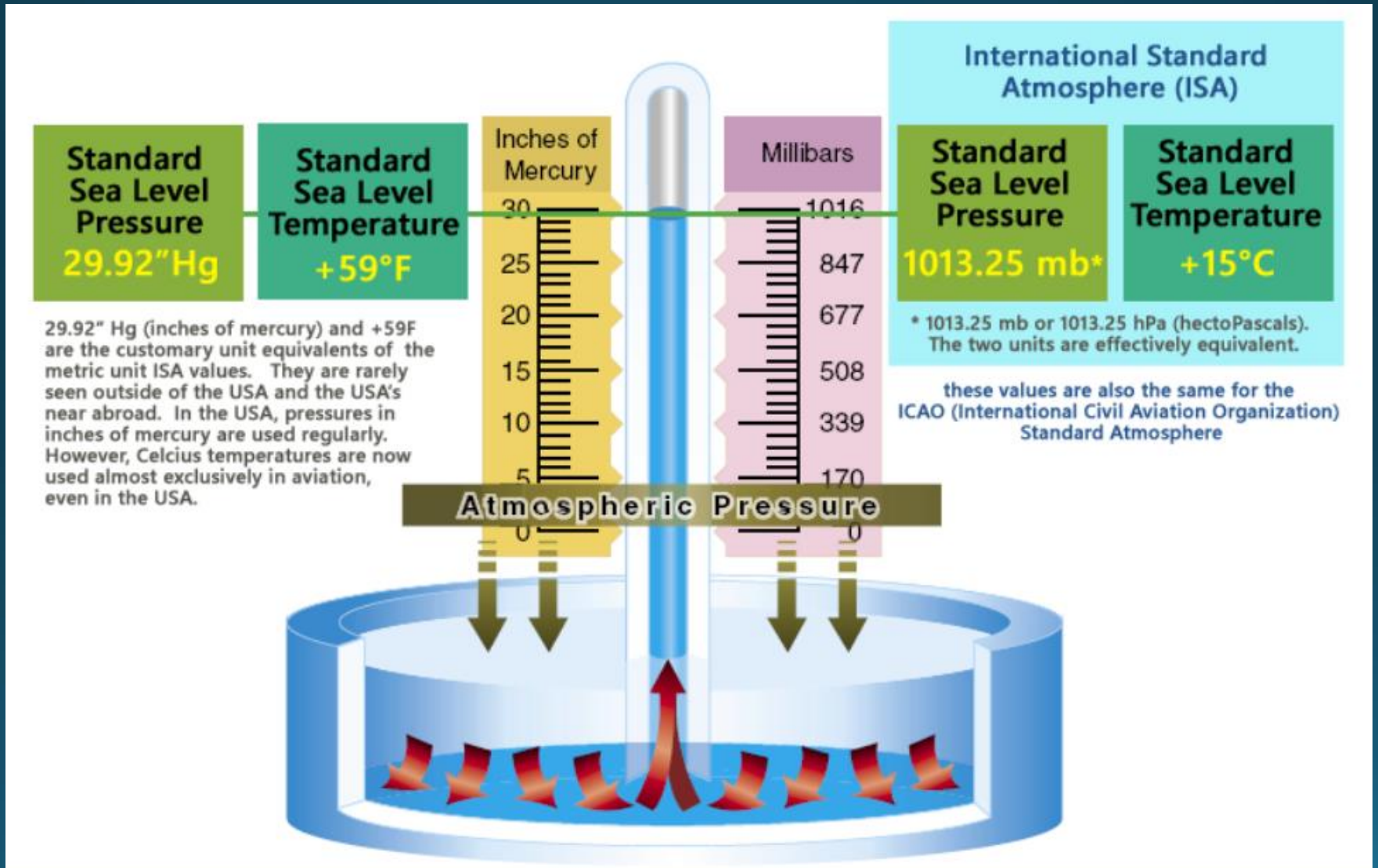
- ◯ 59° C and 1013.2 millibars
- ◯ 15° C and 29.92" Hg
- ◯ 59° F and 29.92 millibars

Question 1

What are the standard temperature and pressure values for sea level?

- +59 °C and 1013.2 millibars.
- +15 °C and 29.92" Hg.
- +59 °F and 29.92 millibars.

Question 1


Standard Sea Level Pressure
29.92"Hg
Standard Sea Level Temperature
+59°F
Inches of Mercury
Millibars
30
25
20
15
10
5
0
1016
847
677
508
339
170
0
Atmospheric Pressure
International Standard Atmosphere (ISA)
Standard Sea Level Pressure
1013.25 mb*
Standard Sea Level Temperature
+15°C
* 1013.25 mb or 1013.25 hPa (hectoPascals). The two units are effectively equivalent.
these values are also the same for the ICAO (International Civil Aviation Organization) Standard Atmosphere
29.92" Hg (inches of mercury) and +59F are the customary unit equivalents of the metric unit ISA values. They are rarely seen outside of the USA and the USA's near abroad. In the USA, pressures in inches of mercury are used regularly. However, Celcius temperatures are now used almost exclusively in aviation, even in the USA.

Question 2

2. Under what condition will pressure altitude be equal to true altitude?

- ◯ When the atmospheric pressure is 29.92" Hg
- ◯ When standard atmospheric conditions exist
- ◯ When indicated altitude is equal to the pressure altitude

Question 2

Under which condition will pressure altitude be equal to true altitude?

- When the atmospheric pressure is 29.92 inches Hg.
- When standard atmospheric conditions exist.
- When indicated altitude is equal to the pressure altitude.

Question 2

1. Indicated altitude: read directly from the altimeter (uncorrected) when it is set to the current altimeter setting.
2. True altitude: the vertical distance of the aircraft above sea level--the actual altitude. It is often expressed as feet above mean sea level (MSL). Airport, terrain, and obstacle elevations on aeronautical charts are true altitudes. True altitude is indicated altitude corrected for non-standard temperature and pressure.
3. Absolute altitude: the vertical distance of an aircraft above the terrain, or above ground level (AGL).
4. Pressure altitude: the altitude indicated when the altimeter setting window (barometric scale) is adjusted to 29.92 "Hg. This is the altitude above the standard datum plane, which is a theoretical plane where air pressure (corrected to 15 °C) equals 29.92 "Hg. Pressure altitude is used to compute density altitude, true altitude, true airspeed (TAS), and other performance data.
5. Density altitude: pressure altitude corrected for variations from standard temperature. When conditions are standard, pressure altitude and density altitude are the same. If the temperature is above standard, the density altitude is higher than pressure altitude. If the temperature is below standard, the density altitude is lower than pressure altitude. This is an important altitude because it is directly related to the aircraft's performance.

Question 3

3. How can you obtain the pressure altitude on flights below 18,000 feet?

- ◯ Set your altimeter to 29.92" Hg
- ◯ Use your computer to change the indicated altitude to pressure altitude
- ◯ Contact an FSS and ask for the pressure altitude

Question 3

How can you obtain the pressure altitude on flights below 18,000 feet?

Set your altimeter to 29.92" Hg.

Use your computer to change the indicated altitude to pressure altitude.

Contact an FSS and ask for the pressure altitude.

Question 3

AC 61-23, chapter 3 defines:

> Pressure Altitude: The altitude indicated when the altimeter setting window (barometric scale) is adjusted to 29.92. This is the standard datum plane, a theoretical plane where air pressure (corrected to 15° C) is equal to 29.92 in. Hg. Pressure altitude is used for computer solutions to determine density altitude, true altitude, true airspeed, etc.

In other words, if you set 29.92 on your altimeter, the resulting reading will be the current pressure altitude.

Question 4

4. If the outside air temperature (OAT) at a given altitude is warmer than standard, the density altitude is

(Single choice)

- ◯ equal to pressure altitude
- ◯ lower than pressure altitude
- ◯ higher than pressure altitude

Question 4

If the outside air temperature (OAT) at a given altitude is warmer than standard, the density altitude is

- equal to pressure altitude.
- lower than pressure altitude.
- higher than pressure altitude.

Question 4

When you hear "density altitude", think of hot days. When the weather is warm, the air gets less dense, so, to the airplane, it is as if the airport were at a higher altitude (the "density altitude"), so performance decreases. Pressure altitude is based on standard temperature, so the answer must be that if the OAT at a given altitude is warmer than standard, the density altitude must be higher than pressure altitude.

Question 5

5. What is the purpose of the rudder on an airplane?

- ○ To control roll
- ○ To overbanking tendency
- ○ To control yaw

Question 5

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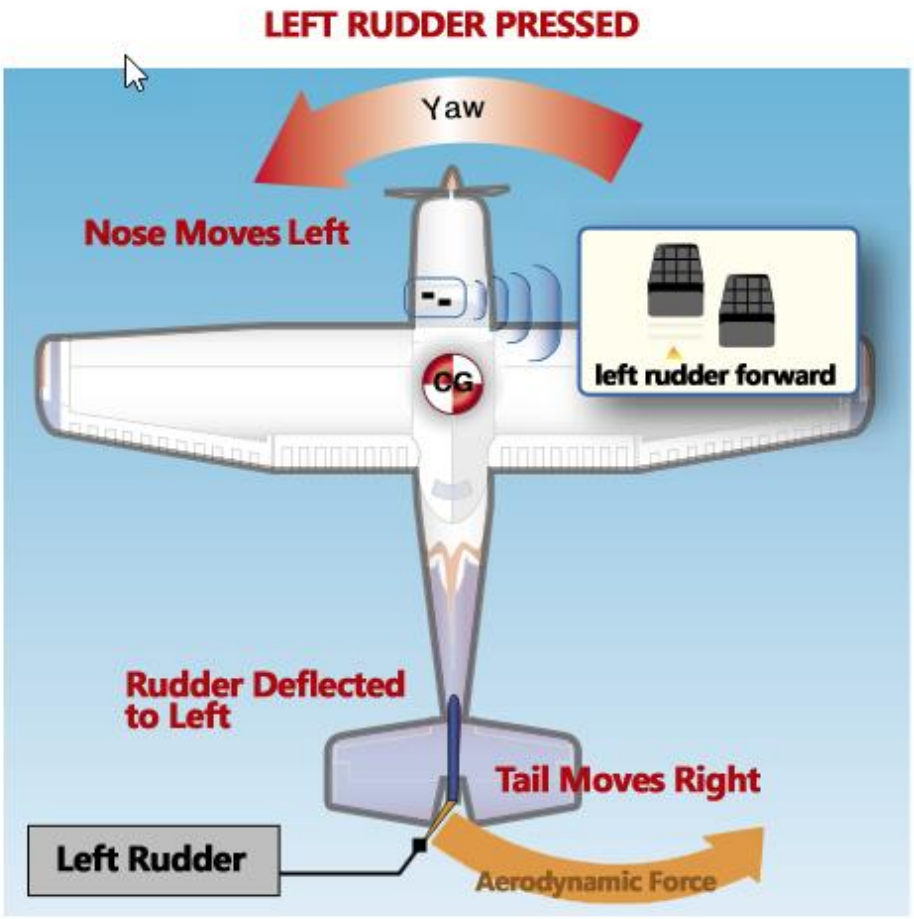
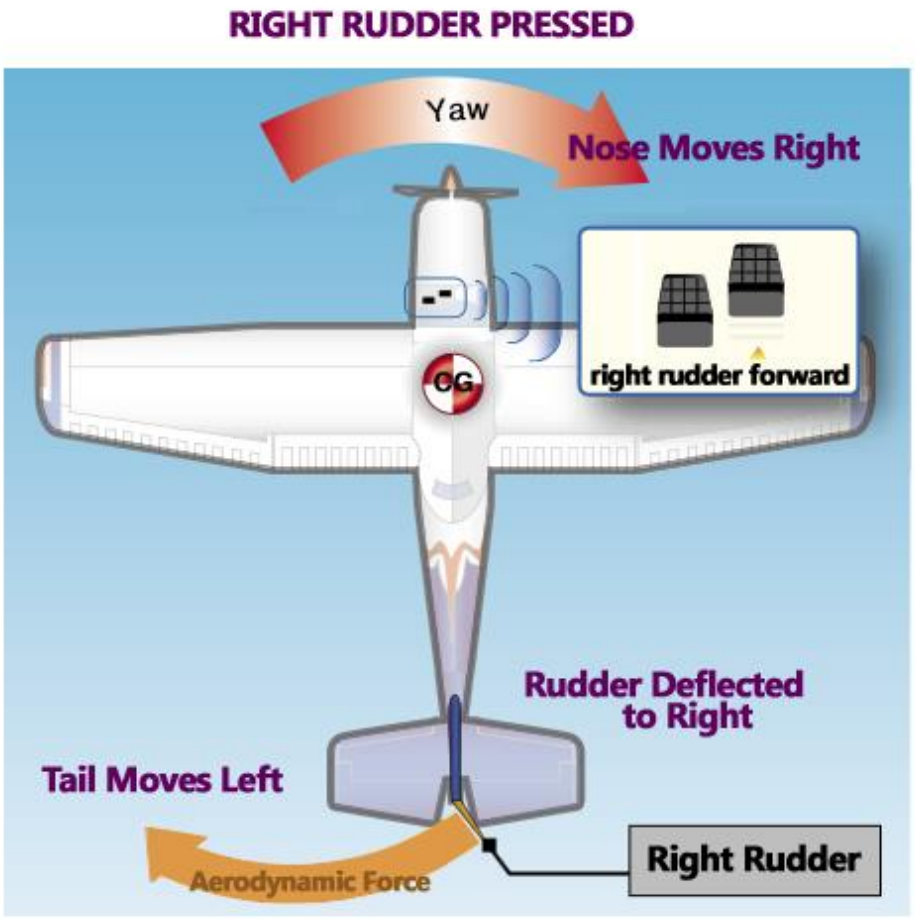
- To control roll.
- To control overbanking tendency.
- To control yaw.

Question 5


LEFT RUDDER PRESSED
Yaw
Nose Moves Left
CG
left rudder forward
Rudder Deflected to Left
Tail Moves Right
Left Rudder
Aerodynamic Force


RIGHT RUDDER PRESSED
Yaw
Nose Moves Right
CG
right rudder forward
Rudder Deflected to Right
Tail Moves Left
Right Rudder
Aerodynamic Force

Question 6

6. What is one purpose of wing flaps? (Single choice)

- ◯ To enable the pilot to make steeper approaches to a landing without increasing the airspeed
- ◯ To relieve the pilot of maintaining continuous pressure on the controls
- ◯ To decrease wing area to vary the lift

Question 6

What is one purpose of wing flaps?

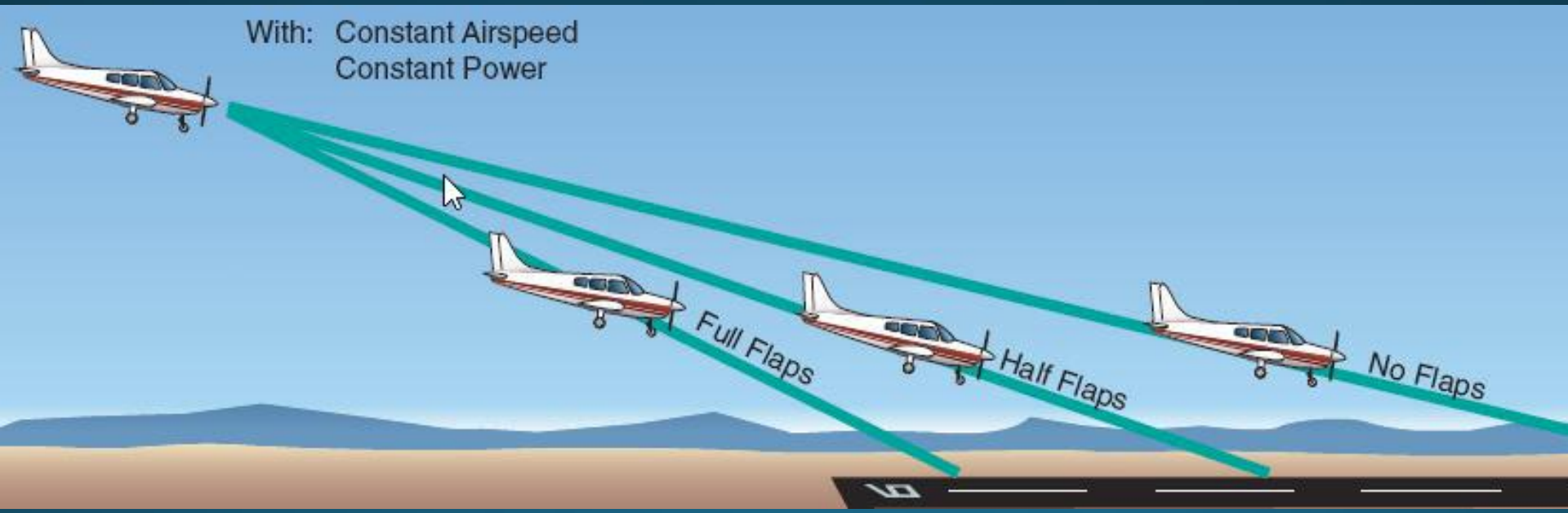
M+

To enable the pilot to make steeper approaches to a landing without increasing the airspeed.

To relieve the pilot of maintaining continuous pressure on the controls.

To decrease wing area to vary the lift.

Question 6


With: Constant Airspeed
Constant Power
Full Flaps
Half Flaps
No Flaps

Question 7

7. Which statement relates to Bernoulli's principle? (Single choice)

- ◯ For every action there is an equal and opposite reaction
- ◯ An additional upward force is generated as the lower surface of the wing deflects air downward
- ◯ Air traveling faster over the curved upper surface of an airfoil causes lower pressure on the top surface

Question 7

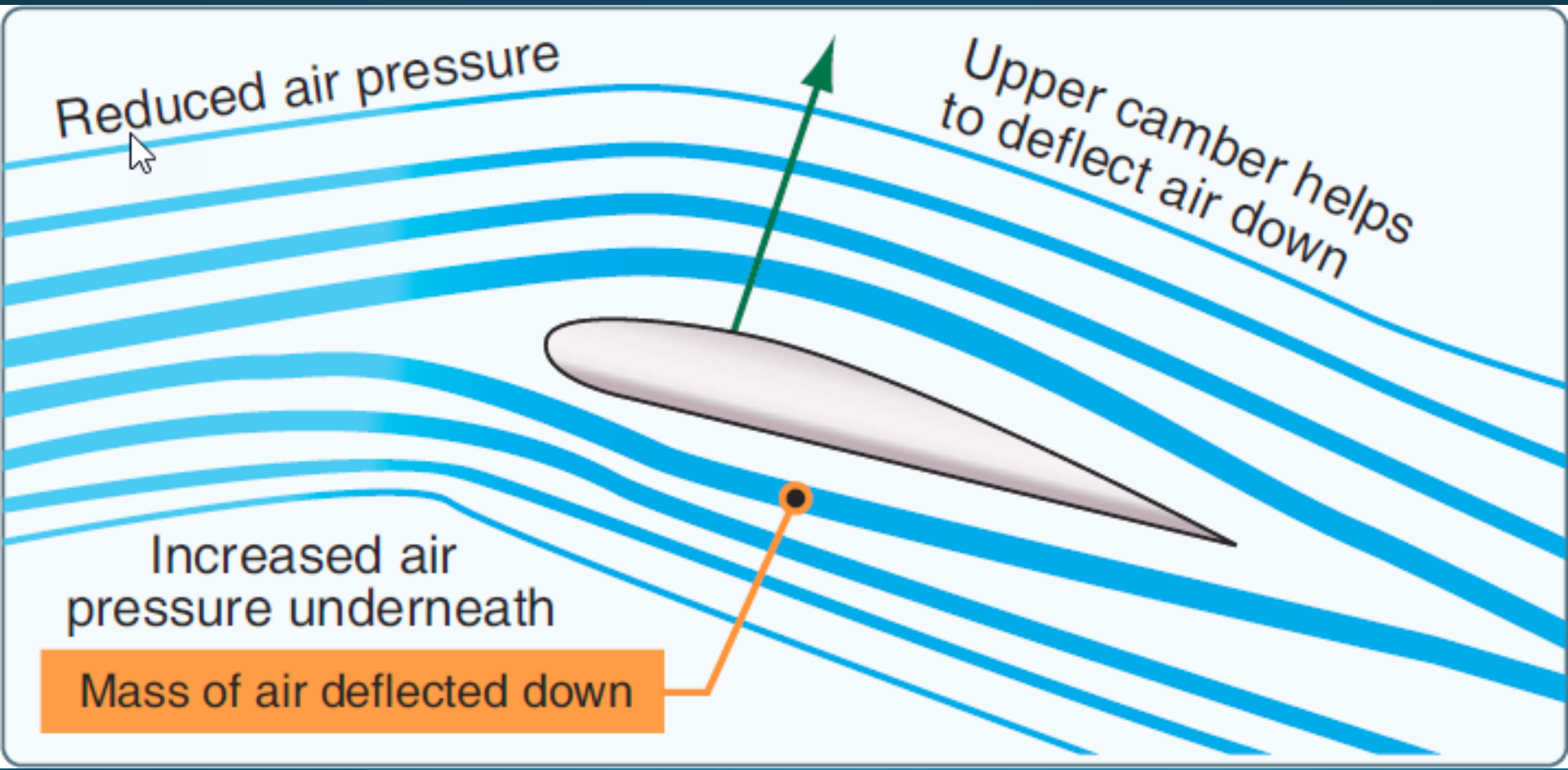
Which statement relates to Bernoulli's principle?

For every action there is an equal and opposite reaction.

An additional upward force is generated as the lower surface of the wing deflects air downward.

Air traveling faster over the curved upper surface of an airfoil causes lower pressure on the top surface.

Question 7


Reduced air pressure
Upper camber helps to deflect air down
Increased air pressure underneath
Mass of air deflected down

Question 8

8. What type of stability does the horizontal stabilizer provide during flight?

- ◯ Airspeed
- ◯ Longitudinal
- ◯ Lateral

Question 8

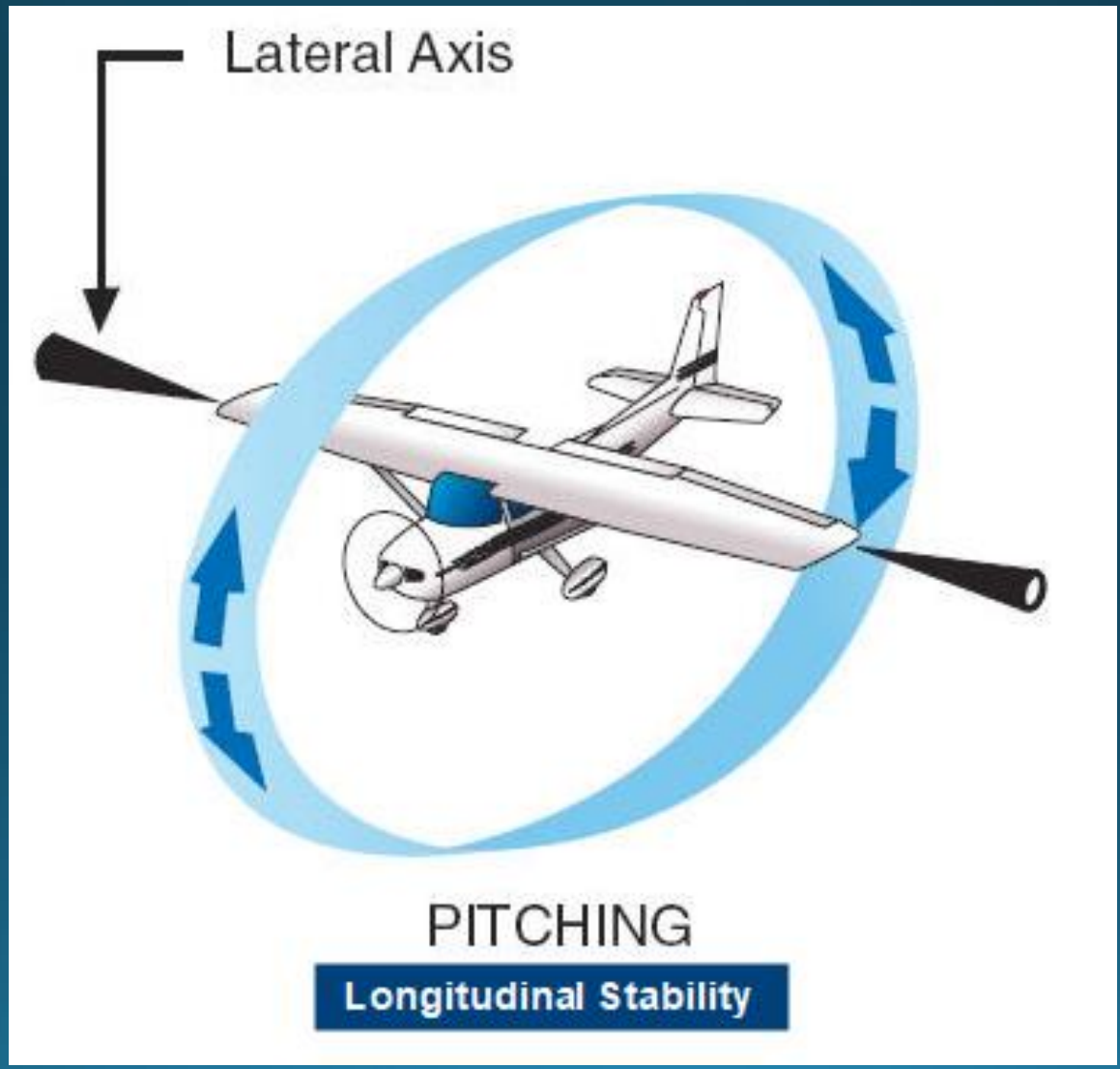
What type of stability does the horizontal stabilizer provide during flight?

Airspeed.

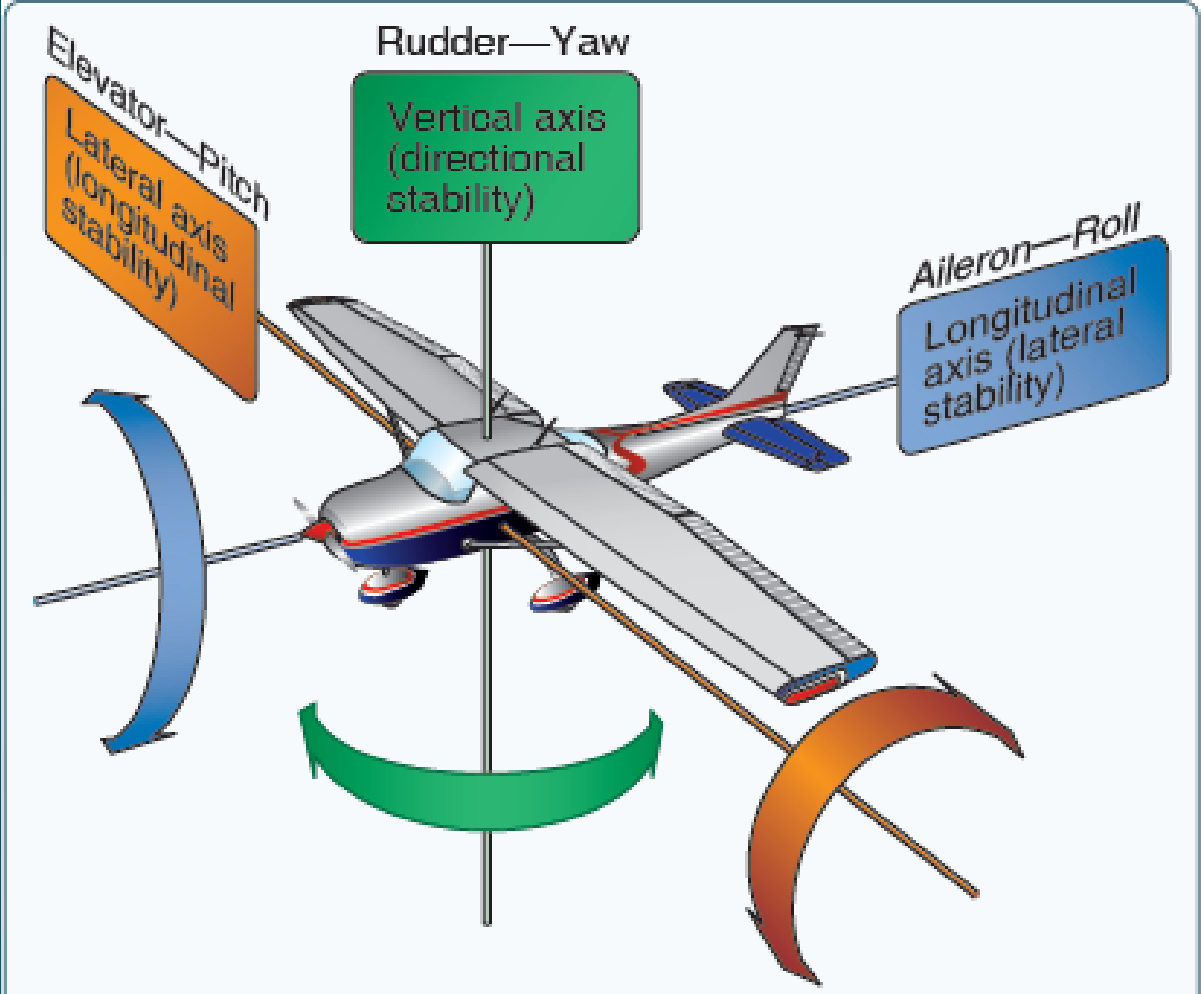
Longitudinal.

Lateral.

Question 8



Question 8



Primary Control Surface	Airplane Movement	Axes of Rotation	Type of Stability
Aileron	Roll	Longitudinal	Lateral
Elevator/ Stabilator	Pitch	Lateral	Longitudinal
Rudder	Yaw	Vertical	Directional