Aerodynamics

1. What does the red line on an airspeed indicator represent?

- Maneuvering speed.
- Turbulent or rough-air speed.
- **Never-exceed speed.**

2. When landing behind a large aircraft, the pilot should avoid wake turbulence by staying

- **Above the large aircraft's final approach path and landing beyond the large aircraft's touchdown point.**
- Below the large aircraft's final approach path and landing before the large aircraft's touchdown point.
- Above the large aircraft's final approach path and landing before the large aircraft's touchdown point.

3. When does P-factor cause the airplane to yaw to the left?

- When at low angles of attack.
- **When at high angles of attack.**
- When at high airspeeds.

4. Upon encountering severe turbulence, which flight condition should the pilot attempt to maintain?

- Constant altitude and airspeed.
- Constant angle of attack.
- **Level flight attitude.**

Note:
The primary concern is to avoid undue stress on the airframe. This can best be done by attempting to maintain a constant attitude while keeping the airspeed below design maneuvering speed (V(A)).

5. What determines the longitudinal stability of an airplane?

- **The location of the CG with respect to the center of lift.**
- The effectiveness of the horizontal stabilizer, rudder, and rudder trim tab.
- The relationship of thrust and lift to weight and drag.

6. What force makes an airplane turn?

- **The horizontal component of lift.**
- The vertical component of lift.
- Centrifugal force.

7. (Refer to Figure 4.) What is the caution range of the airplane?

FIGURE 4.—Airspeed Indicator.

- 0 to 60 KTS.
- 100 to 165 KTS.
- **165 to 208 KTS.**

Note:
165 to 308 knots. For a glider, the yellow arc is the caution range. Gliders are built to be very durable and light aircraft. Therefore, a pilot needs to know that approaching any caution speed could easily push the aircraft beyond its abilities and structural failure can occur at the red line.

8. VNO is defined as the

- Normal operating range.
- Never-exceed speed.
- **Maximum structural cruising speed.**

9. The term "angle of attack" is defined as the angle between the

- **Chord line of the wing and the relative wind.**
- Airplanes longitudinal axis and that of the air striking the airfoil.
- Airplane's centerline and the relative wind.

10. In what flight condition must an aircraft be placed in order to spin?

- Partially stalled with one wing low.
- In a steep diving spiral.
- **Stalled.**