

Chapter 3-1 Basic Aeronautics

Aerospace Science

1. The science relating to the effects produced by air or other gases in motion is known as _____.
2. Air has _____ and _____ and, at sea level, it exerts pressure equally in all directions at just under _____ pounds per square inch of surface area.
3. An _____ is a part of the aircraft designed to produce _____.
4. The difference in _____ above and below the airfoil provides a _____ force.
5. The _____ states as the air velocity increases, the pressure decreases; as the velocity decreases, the pressure increases.
6. A round tube, such as a nozzle or jet engine, designed to increase the speed of flowing gases and liquids is called a _____ after the Italian scientist, G.B. _____.
7. The first useful studies of motion are attributed to _____ and he believed there were two kinds of motion – _____ and _____.
8. Aristotle believed natural motion occurred in _____.
9. According to Aristotle, _____ occurred from applying force to move an object.
10. Newton developed three Laws of Motion... describe each of them.
 - a. **1st Law** –

 - b. **2nd Law** –

 - c. **3rd Law** –
11. Newton's 1st Law of Motion is also known as the Law of _____.
12. _____ is the change in velocity per unit of time.

13. _____ is the rate of motion in a given direction.
14. Force is a _____.
15. _____ is the quantity of material (matter) contained in a body.
16. Weight is _____.
17. The four forces of flight are: _____, _____, _____ & _____.
18. In order for an airplane to fly straight and level, _____ must equal weight and thrust must equal _____.
19. The front of an airfoil is called the _____.
20. If an airfoil is designed for slow aircraft needing a lot of lift, the leading edge is most likely _____.
21. The _____ is the back of the airfoil.
22. The imaginary line drawn from the leading edge to the trailing edge of an airfoil is called the _____.
23. The _____ is the characteristic curve of an airfoil's upper and lower surface.
24. A positive camber means the curve is _____ the chord and a negative camber means the curve is _____ the chord.
25. The flow of air parallel to the flight path of the aircraft is called _____.
26. How does the pilot of an aircraft control the direction and velocity of the relative wind?
- a. Direction:
 - b. Velocity:
27. The angle of attack is the angle at which the _____ meets the airfoil.
28. The angle of attack can also be described as the angle at which the _____ meets the relative wind.

29. Lift can be increased two ways:

- a.
- b.

30. List five lift variables:

31. What are the three names for the point at which lift stops increasing and begins to decrease?

32. As the angle of attack increases, the center of pressure moves _____ and when the angle attack decreases, the center of pressure moves _____ on the airfoil.

33. The point at which the amount of lift generated is no longer sufficient to support the aircraft in the air is called the _____.

34. The aircraft's _____ is that point where the air is too thin to allow further increase in lift.

35. The _____ is the point at which weight force is considered to be concentrated.

36. The _____ is the point at which lift force is considered to be concentrated.