

The Physics of Flight Worksheet (PS-AFSF-7): 6 & 7 November 2013

First & Last Names: _____ Period/Flight: ____/____

1. Magnitude : _____
2. Lift: _____
3. Velocity: _____
4. Weight: _____
5. Center of gravity: _____
6. Trim: _____
7. Thrust: _____
8. Drag: _____
9. Boundary layer: _____
10. Vortex: _____
11. Which of Newton's laws referred to the four forces: _____; and how: _____

12. How did Newton refer to the four forces of flight: _____

13. How does the aircraft's motion through the air generate lift: _____

14. **Explain** the three variables that effect how lift is controlled: _____

15. **Explain** the aircraft's magnitude, weight, & mass in simple terms: _____

16. **Explain** how the aircraft weight challenge is solved: _____

17. **Explain** how controlling the object's flight is solved when weight is an issue:

18. What provides an aircraft's thrust: _____
19. What affects thrust: _____
20. **Explain:** a) what happens when you reduce engine power in level flight= _____
_____ ; b) increase engine power in level flight = _____
_____ ; c) maintain straight and level flight = _____
_____ ; and d) maintain balance of lift and weight: _____

21. What does parasite drag do to aircraft energy:: _____
22. What is ____/how is it overcome/fixed: a) form drag= _____/_____
b) interference drag=_____/_____
c) skin friction=_____/_____
d) induced drag=_____/_____
23. What is induced drag: _____
how is it counteracted: _____
24. Explain the aircraft's flight when the four forces are balanced: _____;
if the four forces are unbalanced: _____
25. What is required of the forces to maintain constant speed: _____;
to maintain constant altitude: _____