**Aero Exam**

1. Weight of a gallon of JP-5 on a standard day: **6.8 lbs**
2. Which is included in Basic Weight: **Engine Oil**
3. Compute a new CG when adding passenger and baggage: **153.6**
4. Define Zero Fuel Weight: **Operational Weight + Payload**
5. Vmca on airspeed indicator: **Red Line at 86 kts**
6. Minimum speed for intentional inflight engine cut: **91 kts**
7. **V1 = VR**
8. Angle of climb: **Vx, excess thrust, 102 kts**
9. Rate of climb: **Vy, excess power, 108 kts**
10. Angle of climb with 1 or 2 engines: **Same** (102)
11. Rate of climb with 1 or 2 engines: **Different** (110, 108 respectively)
12. Do not engage autopilot when in icing conditions.
13. Max speed with flaps fully extended: **140 kts**
14. Define Operating Weight: [NATOPS 21-16]
15. Turbulent air penetration speed: **153 kts**
16. Vmo at 20,000’ MSL: **207**
17. Define Operating Weight: [NATOPS 21-16]
18. Flaps **increase** camber, **increase** lift, and **decrease** stall speed.
19. Compute weight of fuel load: [NATOPS 25-13]
20. Compute FF: **324#/hr**
21. RWY 35, Winds 030@20G31, Xwind = 20 kts: **Yes, Takeoff**
22. Compute climb gradient: **11.5**
23. Compute time/dist to climb: **11min/31NM**
24. Compute FF: **444#/hr**
25. Compute Max Cruise TQ: **790 ft-lbs**
26. Compute TQ for Max Endurance: **684 ft-lbs**
27. Compute FF: **364#/hr**
28. Compute time/dist/fuel to descend: **11min/44NM/61#**
29. Reduction in climb performance when single engine: **70-80%**
30. Compute difference in climb rate between dual and single engine: **1500fpm**
31. Effects of left engine failure: **left yaw, left roll**
32. Cardinal rule with an engine failure: **aircraft control and airspeed**
33. Define Critical Engine Speed: [NATOPS 24-1]
34. Why is there a one engine inoperative service ceiling chart: **stay above MEA**
35. Airspeed to maximize time to prepare for ditching: **102 kts**
36. Service ceiling: **can no longer maintain 100 FPM**
37. When you pull the nose up, gyroscopic precession causes: **yaw right**
38. Compute Max Cruise TQ: **830 ft-lbs**
39. Compute dist/time/fuel for descent: **28NM/10min/1360fpm**
40. – 50. Form F & TOLD

Other potential questions from old gouge:

* Aircraft always stalls at same: **AOA, regardless of weight**
* Max operating speed: **227 kts**
* Zero fuel weight is: **operating weight + payload weight**
* Basic weight does not include: **emergency equipment**
* Primary factor affecting vortex strength: **weight**
* Causes of OCF: **asymmetric thrust, wake turbulence, autopilot malfunctions**
* With flaps down: **parasite drag increases, induced drag increases**
* VR must be high enough to attain Vx by: **50’**