Homework 9

Study Questions

Commercial AVF 221

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_ Score\_\_\_\_\_

1. What is the equation of state?
2. Define:

Rho

P

TR

1716

1. How does a change in temperature affect pressure and density?
2. How does the airspeed indicator *only* measure dynamic pressure?
3. What is position error?
4. What is instrument error?
5. Why are errors found in airspeed in high angle of attack and skids?
6. Does the airspeed indicator account for changes in pressure?
7. Does the airspeed indicator account for changes in density?
8. Define calibrated airspeed
9. Define equivalent airspeed
10. Define true airspeed
11. What happens to the difference between CAS and EAS as altitude and airspeed is increased?
12. Does TAS equal ground speed in no wind conditions?
13. Using your E6b find the TAS for:

IAS 130kts IAS 130kts

Temp +15°C Temp +33°C

PA 10,000 PA 1,000

1. Why is it higher at 10,000?
2. Under part 23 how close does TAS (standard day) have to be to CAS?
3. On what pages in the Bonanza POH can we find airspeed and altimeter calibration/correction information for the Bonanza?

Define:

1. True altitude
2. Absolute altitude
3. Pressure altitude
4. Indicated altitude
5. Density altitude
6. When flying from high to low will the airplane be higher or lower than what is indicated on the altimeter?
7. As pressure goes up what happens to indicated altitude?
8. If you increase the numbers in the Kolesman window what happens to altitude?
9. What is the difference between an encoding altimeter and a blind encoder?
10. Why does the reading on the VSI lag?
11. What is the average lifetime of a geomagnetic field polarity?
12. When a turn is started from south on the magnetic compass, which way does the card turn?
13. How many steps does Kershner have for swinging a compass?
14. What is the principle of gyroscopic rigidity in space?
15. Resistance to change is a function of what 3 items?
16. Which of Newton’s laws back up the behavior of rigidity in space?
17. What is a gimbal?
18. How fast does the attitude indictor gyro spin?
19. What are the pitch and bank limits on the older attitude indicators?
20. What error is induced by aircraft acceleration on the attitude indicator?
21. Which way is the axis of the gyro orientated in an attitude indicator?
22. Which way is the axis of the gyro orientated in a heading indicator?
23. How does the rotation of the earth cause errors in the heading indicator?
24. What happens if a gyro is placed on a stand with the spin axis 90° to the pull of gravity?
25. How does the turn coordinator and turn and slip indicator use precession?
26. What is the angle of the spin axis of the turn coordinator?
27. What’s the idea of tilting the axis in the turn coordinator?
28. What internal workings drive the tachometer?
29. What is inside the MAP that enables it to measure manifold pressure?
30. What is a Bourdon tube?
31. What is a thermocouple?
32. What are the three components to an electrical fuel gauge?