

1. At maximum takeoff weight, the B757 takes 7000 feet to rotate at standard temperature. Its roll increases 10% for every 10 degrees above standard. DFW is 625 feet MSL. Assuming the runway is 13,401 feet long, and the plane rotates with 5000 feet of runway left, what was the temperature at DFW? No wind.
 - a. 13.8°C
 - b. **33.8°C**
 - c. 36.2°C
 - d. 37.5°C

2. Your climb profile is 290 KIAS until reaching M 0.76. If the temperature is -30°C when this occurs, what is your altitude?
 - a. FL266
 - b. **FL272**
 - c. FL280
 - d. FL 287

3. You're flying your incomparable Cessna 150 around. It has a VOR receiver in it! Now you've been flying for 47 minutes at 100 kts on your 125 nm. flight. Your VOR indicates you are 3° right of your course. How many miles are you off your course?
 - a. 3.92 sm.
 - b. **4.5 sm.**
 - c. 2.34 sm.
 - d. 2.69 sm.

4. You're in Antarctica, and it's -100°C. What's your temp in °F?
 - a. -140 degrees
 - b. -143 degrees
 - c. -146 degrees
 - d. **-148 degrees**

5. You are flying between NDB bearings. You cross the 269° bearing at 11:48:42 and then cross the 279° bearing 11:50:54. Your distance to the station is 37 kilometers. What is your groundspeed?
 - a. 132 kmph.
 - b. 120 mph.
 - c. 133 ft/sec.
 - d. **90.1 kts.**

6. Referencing the previous question, what is your time to the station?
 - a. **13.2 minutes**
 - b. 809 seconds
 - c. .241 hours
 - d. 9.01 minutes

7. If this were an arc, how long would a full circle be around the NDB?

- a. 238.9 km
 - b. 144.9 nm
 - c. 125.6 sm
 - d. **232.6 km**
8. If 15 gallons of oil weigh X number of pounds, how many quarts will we use to fill our 15 gallon capacity?
- a. 113
 - b. **60**
 - c. 90
 - d. Unable to determine
9. You are running from Clay Matthews at 1800 feet per minute, and he is running at 12.2 meters per second. Yeah he runs fast. If he will tackle you when he catches you in 2 seconds, how far did you have to run?
- a. 16.6 meters
 - b. 80 feet
 - c. **60 feet**
 - d. 6.5 feet
10. If a Cessna 172 is loaded up to 2,550 lbs, and your boyfriend, who weighs “175 pounds on the button” hops out of the back seat at station 73 inches, what’s the new CG in inches? Original CG 105.918 cm.
- a. **39.39**
 - b. 43.85
 - c. 39.69
 - d. 44.08
11. Find the magnetic winds aloft. TC: 308°, TAS: 134 KTS, GS: 156 KTS, TH: 297°, Variation: 8W
- a. **182° at 35 knots**
 - b. 360° at 33 knots
 - c. 174° at 35 knots
 - d. 079° at 30 knots
12. Johnny departs from an airport on a true course of 157° while the winds at his altitude,

7500' MSL, are blowing from 220° at 24 knots. With 212 nautical miles total distance to travel, how many miles after departing will the time it takes to continue to his destination be equal to the time it takes to return to his departure airport? The outside air temperature is ISA+12°C and his indicated airspeed is 153 mph. Altimeter is 29.92" Hg. Fuel on board 2 hours 30 minutes.

- a. **114 nm**
- b. 98 nm
- c. 130 nm
- d. 84 nm

13. If an aircraft is flying at 192 knots, how many feet does it travel every second?

- a. 282
- b. **324**
- c. 195
- d. 1,944

14. Given the following information, find true altitude MSL. Elevation = 6,531' MSL; Indicated altitude = 12,500' MSL; Temperature = 22°C; Altimeter setting = 29.33" Hg; Indicated airspeed = 188 knots.

- a. 6,920'
- b. **13,221'**
- c. 11,851'
- d. 6,690'

15. An airliner flying at Mach 0.79 with a TAS of 450 knots is indicating a temperature of -30°C. What is the actual outside air temperature if the OAT probe has a Ct of 1.0?

- a. -27°C
- b. -3°C
- c. **-57°C**
- d. -48°C

16. On a windy day, two aircraft in vicinity of each other are communicating and wish to find the actual winds aloft. The first aircraft is flying a magnetic heading of 287° and notices a drift of 6° to the right. The second aircraft is flying a magnetic heading of 352° and notices a drift of 4° to the left. If both aircraft are flying at 120 knots true airspeed, what are the magnetic winds aloft?

- a. **145° at 23 knots**
- b. 160° at 31 knots
- c. 326° at 22 knots
- d. 331° at 28 knots

17. How many knots of crosswind does an aircraft experience on final for runway 2? Winds are 330° at 28 knots. Aircraft true airspeed is 160 mph.

- a. **22 knots left crosswind**
 - b. 21 knots right crosswind
 - c. 18 knots left crosswind
 - d. 19 knots right crosswind
18. Jerry is flying his single engine airplane flying home at 138 knots groundspeed on a true course of 225° when he accidentally flies into a TFR. At that moment, with 92 nm remaining on his flight, a military jet is sent to intercept him from a base that is to the northeast (specifically 045°) and 198 nm away. If the jet flies at 465 KTAS, how long will it take for the jet to intercept Jerry in his single engine airplane? Wind is calm.
- a. 52 minutes 24 seconds
 - b. **36 minutes 15 seconds**
 - c. 58 minutes 11 seconds
 - d. 41 minutes 36 seconds
19. How far from home is the single engine airplane intercepted?
- a. 12.4 nm
 - b. 37.9 nm
 - c. 21.2 nm
 - d. **8.7 nm**
20. The wind is from 070° true at 14 knots. Your plane has a cruise TAS of 214 mph while burning 17.6 gph of fuel. If you fill the tanks to their capacity of 65 gallons, how far out can you fly on a true course of 122° and loiter for 45 minutes before returning home and landing with 30 minutes of fuel remaining?
- a. 215 nm
 - b. 221 nm
 - c. **227 nm**
 - d. 234 nm
21. You cross the DEN VOR radial 159 at 2026 zulu and cross the 145 radial at 2027:27 zulu. Your DME shows 47.5 nm What is your groundspeed?
- a. **460 knots**
 - b. 620 mph
 - c. 438 knots
 - d. 477 knots
22. 29.99 in Hg = how many millibars?
- a. 1015 mb
 - b. **1016 mb**
 - c. 1017 mb
 - d. 1018 mb
23. You must clear a 1,700' hilltop on departure. If you takeoff from sea level and the hill is 6.3 nm away, will you clear the hill at your normal climb speed of 150 mph which yields

a 595 fpm rate of climb?

- a. **Yes**
- b. No

24. Referencing the previous question, by how much will you clear the hill?

- a. You will impact 191 feet below the hilltop
- b. You will impact 84 feet below the hilltop
- c. **You will clear the hill by 28 feet**
- d. You will clear the hill by 188 feet

25. You enter oceanic airspace over KEEKA at 1553 zulu. ATC assigns you a cruise speed of M .78 at FL370 burning 6,000 pounds of fuel per hour. ATC asks at what time you will be able to climb and maintain FL380. You look in the FMC and see that you weigh 161,000 pounds and that FL 370 is your maximum altitude currently. You research and notice that you can only weigh 150,000 pounds to reach FL 380. What time do you tell ATC?

- a. 1736 zulu
- b. 1740 zulu
- c. **1743 zulu**
- d. 1748 zulu

26. Referencing the previous question, how many miles would you fly during that time if the wind is 240° true at 74 knots. Your magnetic course is 004° and the variation is $14^\circ W$. OAT is $-64^\circ C$.

- a. 910 nm
- b. **843 nm**
- c. 814 nm
- d. 879 nm

27. At FL 390 and M .77, what is your IAS if the OAT is $-64^\circ C$?

- a. **224 knots**
- b. 375 kph
- c. 433 mph
- d. 294 knots

28. How long will it take to fly 1.7 nm on a true course of 256° at an IAS of 144 knots at 3,500' pressure altitude and a temperature of $+24^\circ C$? The wind is from 140° true at 18 knots.

- a. 6.28 minutes
- b. 1 min 12 seconds
- c. **37.5 seconds**
- d. .072 hours

29. Find true altitude AGL. Elevation 3720'. Cruising at 9500' MSL. Altimeter 30.21" Hg. - $23^\circ C$.

- a. 8800'
- b. 9070'
- c. 9210'
- d. **5350'**

30. Current CG = 34.7". Aft limit is 33.0". At 3700 lbs, what station would you have to delete 130 lbs from in order to shift the CG forward to the aft limit?

- a. Station 16
- b. Station 47
- c. Station 52
- d. **Station 81**

Use the following information to answer 31-35.

True Course: 130°

Wind: 3000	260° at 26 knots	TAS: 105 knots
6000	290° at 38 knots	TAS: 109 knots
9000	320° at 50 knots	TAS: 113 knots

Fuel on board: 54 gallons Fuel burn: 11.8 gph No reserve.

31. Which altitude will give you the greatest radius of action?

- a. **4500'**
- b. 6000'
- c. 7500'
- d. 8500'

32. Which altitude will give you the largest outbound wind correction angle?

- a. 8500'
- b. 7500'
- c. 6000'
- d. **4500'**

33. What is the groundspeed back at 7500'?

- a. 120 knots
- b. 102 knots
- c. 89 knots
- d. **67 knots**

34. What is the time to turn at 8500'?

- a. **79.5 minutes**
- b. 83 minutes
- c. 93 minutes
- d. 104 minutes

35. What is the groundspeed out at 6000'?

- a. 131 knots

- b. **144 knots**
 - c. 155 knots
 - d. 161 knots
36. Find density altitude. Elevation 3,110'. Cruise at 6,500' MSL. Altimeter 30.30" Hg. 20°C.
- a. **8000'**
 - b. 6710'
 - c. 6890'
 - d. 6120'
37. Find pressure altitude. Elevation 7770'. Cruising at 17,500' MSL, -22°C, Altimeter 29.29" Hg.
- a. 17,470'
 - b. **18,130'**
 - c. 16,900'
 - d. 9,730'
38. What is the landing weight and CG of an aircraft after it has flown for 7 hours burning 9.5 gallons per hour from station 89? It departed at 3370 lbs and a CG of 77.3".
- a. 2710 lbs and 74.4"
 - b. **2971 lbs and 75.7"**
 - c. 3304 lbs and 77.0"
 - d. 3171 lbs and 63.1"
39. What climb rate do you have if you're climbing at 410 ft/sm with a ground speed of 93 knots?
- a. **730 fpm**
 - b. 634 fpm
 - c. 550 fpm
 - d. 2300 fpm
40. Find TC. Wind 040° at 30 kts, GS: 114 kts, TAS: 140 kts, TH: 012°
- a. 018°
 - b. 347°
 - c. 012°
 - d. **005°**