

National Intercollegiate Flying Association
1998 SCAN Test

On May 6, 1998 you (170 lbs) and two friends Brian (160 lbs) and Corrine (110 lbs) depart Great Falls International airport at 1300 Z for a day at the Frontier Days celebration in Lewistown. Your route is as follows: Great Falls (KGTF) – Lewistown (KLWT) – Winifred (9S7) – Fort Benton (79S) – Dutton (5U1) – Great Falls (KGTF). After Lewistown, Brian and Corrine will join you to Winifred (grass field) where you will pick up another friend, Dave (150 lbs). The three of you will proceed to Fort Benton where you will drop Brian off. You will then drop Dave off at Dutton and continue back to Great Falls with Corrine. Sunset is 1850 local. Use Local + 6 as the GMT time conversion. Today's trip will be flown in a C-172 P.

	Route	Altitude	Departure Time
Leg 1	KGTF – GTF (VOR) – LWT (VOR) – KLWT	7500 or 8500	1300 Z
Leg 2	KLWT Direct 9S7	6500 or 7500	2300 Z
Leg 3	9S7 Direct 79S	6500	2330 Z
Leg 4	79S Direct 5U1	6500	0015 Z
Leg 5	5U1 Direct KGTF	5500	0135 Z

Climb

Use 450 fpm, 9.1 gph, and 80 KTAS, with a true wind of 260 at 15 knots. Include 1.1 gal for each STTO.

Cruise

Use the C-172 cruise performance chart. Cruise at 65% power.
Interpolate the winds on the FD. On leg 5, use the winds at 6000 feet

Descent

Use 500 fpm, 6.9 gph, and 125 KTAS, with a true wind of 260 at 15 knots

KGTF 1253 21009KT 5SM MIBR SCT050 5/-1 A3009

TAF KGTF 061120 1212 20012KT 5SM SCT050BR PROB40 1517 5SM SHRA
FM1700 24015KT P6M SCT060 FM0000 26010KT P6SM SKC
FM0400 VRB04KT P6SM SKC

SLCC FA 061045

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 070500

CLDS/WX VALID UNTIL 062300...OTLK VALID 062300-070500

ID MT NV UT WY CO AZ NM

SEE ARIMET SIERRA FOR IFR CONDS AND MTN OBSCN
TSTMS IMPLY PSBL SVR OR GTR TURBC SVR ICG LLWS
AND IFR CONDS
NON MSL HGTS ARE DENOTED BY AGCL OR CIG

SYNOPSIS... HIGH PRES OVER NWRN MT CONTG SEWD GRDLY.
LOW PRESS OVR CO CONTG NEWD. ALF...TROF EXTDS FROM ERN MT
INTO ERN NM MVG EWD.

MT

FROM CTB TO 30E GTF TO HLN TO MSO TO CTB

80-90 SCT. WDLY SCT RW- OTLK VFR

FD GTF	3000	6000	9000
		2720+03	3035-03

You are a multi-engine, instrument rated commercial pilot with 850 hours total time

Date	Aircraft	Cat/Class	Day landings	Night landings
1/25/98	C-172 Skyhawk	ASEL	1	2
2/5/98	C-172 Skyhawk	ASEL	1	0
3/1/98	PA-28 Cherokee	ASEL	1	0
3/5/98	PA-28 Cherokee	ASEL	0	1
3/16/98	C-90 King Air	AMEL	3	0
4/28/98	C-172 Skyhawk	ASEL	0	1

- Based on the logbook entries, are you current to carry passengers on this flight?
 - Yes
 - No
- Before the flight you check the maintenance records. How often must the aircraft's static pressure system and altimeter instrument is checked prior to a VFR flight.
 - 6 calendar months
 - 12 calendar months
 - 24 calendar months
 - Not required
- What is your takeoff weight at Great Falls International Airport under the following conditions?

	Weight	Arm	Moment (lb-ins/1000)
BEW	1467 pounds		57.3

You plan to carry 40 gallons of usable fuel.
 For planning purposes, Corrine will always ride in the front passenger seat.
 Use the standard seating arrangement with 37" as pilot / passenger arm

- 2140 lbs
 - 2147 lbs
 - 2183 lbs
 - 2190 lbs
- What is your takeoff distance over a 50-foot obstacle on runway 21 using the 1253Z weather conditions at KGTF?
 - 1465 feet
 - 1542 feet
 - 1628feet
 - 1736 feet
 - A ceiling is defined as:
 - The height above the ground of the lowest layer of clouds or obscuring phenomena aloft that covers 4/8 or more of the sky that is not thin or partial.
 - The height above the ground of the highest layer of clouds or obscuring phenomena aloft that Covers 4/8 or more of the sky that is not thin or partial.
 - The height above the ground of the lowest layer of clouds or obscuring phenomena aloft that is reported as scattered, broken, or overcast that is not thin or partial.
 - None of the above.

6. On leg 1, how much time will you spend in the climb after crossing the Great Falls VOR?
 - A. 3.4 minutes
 - B. 4.5 minutes
 - C. 5.9 minutes
 - D. 6.8 minutes

7. How much fuel will you consume on leg one including the STTO fuel?
 - A. 32.6 pounds
 - B. 37.8 pounds
 - C. 42.3 pounds
 - D. 49.5 pounds

8. The purpose of the Great Falls TRSA is to:
 - A. Provide separation between all participating VFR aircraft and all IFR aircraft.
 - B. Provide sequencing and spacing between all aircraft.
 - C. Provide separation between all VFR and IFR aircraft.
 - D. Provide sequencing and spacing for VFR aircraft and participating IFR aircraft.

9. Towards the end of leg one, you will be flying on the leeward side of Big Baldy Mountain. What conditions are required for mountain wave formation according to the AIM?
 - A. Wind blowing across a range at 15 knots or greater at an angle not less than 30 degrees.
 - B. Wind blowing across a range at 30 knots or greater at an angle not less than 30 degrees.
 - C. Wind blowing across a range at 30 knots or greater at an angle not less than 15 degrees.
 - D. Wind blowing across a range at 15 knots or greater at an angle not less than 15 degrees.

10. Prior to your descent into Lewistown, you wish to check the weather conditions on AWOS3. What weather information do you expect to receive?
 - A. Wind, altimeter, dew point, density altitude, temperature
 - B. Wind, altimeter, dew point, density altitude, temperature, visibility
 - C. Wind, altimeter, dew point, density altitude, temperature, visibility, cloud/ceiling data
 - D. Wind, altimeter, dew point, density altitude, temperature, visibility, cloud/ceiling data, precipitation

11. AWOS transmissions are engineered to be receivable to:
 - A. A maximum of 30 NM and 18000 feet AGL
 - B. A maximum of 10 NM and 3000 feet AGL
 - C. A maximum of 50 NM and 10000 feet AGL
 - D. A maximum of 25 NM and 10000 feet AGL

12. You notice that the Lewistown NDB is HW facility. Which of the following best describes the LWT NDB?
 - A. A 25 NM service volume with no voice capability
 - B. A 50 NM service volume with voice capability
 - C. A 50 NM service volume with no voice capability
 - D. A 25 NM service volume with voice capability

13. What frequency can be used to close your flight plan to Lewistown?
- A. 122.2
 - B. 122.0
 - C. 122.6
 - D. 123.0
14. What is your magnetic heading in cruise on leg 2?
- A. 333
 - B. 339
 - C. 350
 - D. 353
15. What is your landing distance ground roll at Winifred (9S7) under the following conditions?
- Pressure altitude = 3000 feet Temperature = 68 F Wind = Calm
- A. 615 feet
 - B. 723 feet
 - C. 834 feet
 - D. 892 feet
16. What hazards may exist during the first half of leg three?
- A. A high volume of pilot training from 300' AGL to 18000 feet
 - B. Unusual hazards such as aerial gunnery or guide missiles from 300' AGL to 10000 feet
 - C. Military training exercises from the surface to 300 feet AGL
 - D. Military training activities from 300' AGL to 18000 feet
17. What is your center of gravity when you land at Fort Benton?
- A. 39.6 inches
 - B. 42.5 inches
 - C. 44.2 inches
 - D. 45.9 inches
18. What frequency will you use for flight following from Fort Benton to Dutton?
- A. 119.3 GTF Approach
 - B. 126.85 SLC Center
 - C. 118.5 SLC Center
 - D. 120.1 GTF Approach
19. Under what conditions is ATC required to solicit PIREPs?
- 1. Ceiling less than or equal to 5000 feet
 - 2. Visibility at or below 7 statute miles
 - 3. Thunderstorms or related phenomena
 - 4. Light or greater turbulence
 - 5. Wind shear
- A. 1,2,3,4,5
 - B. 1,3,4,5
 - C. 3,4,5
 - D. 1,3,5

20. At what point will you reach the Top of Climb while enroute to Dutton?
- A. Over a road heading North out of the town of Carter
 - B. One nautical mile past a set of power lines
 - C. Abeam a 203-foot tower.
 - D. 8.7 statute miles West of Fort Benton.
21. How much distance will be cover in the cruise leg from Fort Benton to Dutton?
- A. 26.6 statute miles
 - B. 23.1 statute miles
 - C. 25.1 nautical miles
 - D. 21.0 nautical miles
22. What is your descent gradient in feet per nautical mile as you descend to Dutton?
- A. 385 ft/NM
 - B. 272 ft/NM
 - C. 216 ft/NM
 - D. 334 ft/NM
23. Great Falls approach advises you of several traffic targets above and ahead of you. you see a glider, and airship, a refueling operation, and a rotorcraft converging. out of those, who has the right of way?
- A. Glider
 - B. Airship
 - C. Refueling operation
 - D. Rotocraft
24. Which of the following would be considered preventative maintenance that you could perform on the ground at Dutton?
- A. Servicing landing gear wheel bearings
 - B. Alteration of main seat support brackets
 - C. Engine adjustment to allow automotive gas to be used
 - D. Replacing hydraulic hose connections.
25. On the horizon to the West, you can see some volcanic ash in the atmosphere. What weather source(s) should you consult to find out more information?
- A. Airmets, Sigmets, Center Weather Advisories, Severe Weather Forecast Alert
 - B. Sigmets, Pireps, TWEBS, Center Weather Advisories
 - C. Sigmets, Pireps, Convective Sigmets
 - D. Convective Sigmets, Pireps, Center Weather Advisories, TWEBS
26. If you wanted to do some practice takeoffs and landings at Dutton at 0200Z, what weather minimums would apply in the traffic pattern?
- A. 1 statute mile, 500' below, 1000' above, 2000' horizontal
 - B. 3 statute miles, 500' below, 1000' above, 2000' horizontal
 - C. 3 statute miles, clear of clouds
 - D. 1 statute mile, clear of clouds

27. What is your true heading in the climb on leg 5?
- A. 149 degrees
 - B. 154 degrees
 - C. 159 degrees
 - D. 164 degrees
28. When must the aircraft be equipped with the night VFR equipment listed in CFR 91.205? (Fuses, landing light, anti-collision light, position lights, and source of electrical power)
- A. Sunset to sunrise
 - B. The end of evening civil twilight to the beginning of morning civil twilight
 - C. One hour after sunset to one hour before sunrise
 - D. One hour after civil twilight to one hour before civil twilight
29. On the final leg to Great Falls, you experience a burning odor as you cross the town of Power. You ascertain that you have an electrical fire behind the instrument panel. After extinguishing the fire, you realize that the DME and the electrical wire to the flap motor have been destroyed rendering both components inoperative. How long do you have before you must submit a report to the NTSB?
- A. Immediately
 - B. 7 days
 - C. 10 days
 - D. Not required unless requested
30. What frequency would you use to declare an emergency if necessary?
- A. 121.5
 - B. 119.6
 - C. 122.9
 - D. 123.0
31. What best describes the runway edge lights of Runway 21 at Great Falls International Airport?
- A. White lights replaced by red on the last 2000 feet of the runway
 - B. White lights replaced by red on the last 1000 feet of the runway
 - C. White lights replaced by alternating amber and white on the last 3000 feet to 1000 feet of the runway, and amber the last 1000 feet of the runway.
 - D. White lights replaced by amber on the last 2000 feet of the runway
32. At night the VASI (V4L) for runway 21 will provide what obstacle clearance protection?
- A. Within 10 degrees of runway centerline out to 20 miles
 - B. Within 20 degrees of runway centerline out to 10 miles
 - C. Within 10 degrees of runway centerline out to 4 miles
 - D. Within 20 degrees of runway centerline out to 15 miles

33. What is your landing distance over a 50 foot obstacle at Great Falls under the following conditions?
- Pressure altitude = 3500 feet Temp = 20 C Wind = Calm
- A. 1413 feet
 - B. 1907 feet
 - C. 1507 feet
 - D. 2017 feet
34. What services are available at Great Falls International Airport?
- A. Minor airframe, major powerplant
 - B. Major airframe, minor powerplant
 - C. Minor airframe, minor powerplant
 - D. Major airframe, major powerplant
35. At the completion of the trip, Corrine asks if you can share operating cost on a trip to Helena in Cessna Crusader T-303 next week. Are you able to act as PIC in this unpressurized twin engine aircraft with a service ceiling of 26000 feet? You do not have a high altitude endorsement.
- A. Yes
 - B. No
36. What is your landing weight at Great Falls International Airport?
37. What is the elevation of the Great Falls VOR facility?
38. What does the term MIBR represent on the KGTF Metar at 1253Z?
39. How much flight time will you log today in decimal hours (Ex. 1.3)?
40. How much fuel will the attendant pump into your tanks to fill them up to the 40 gallon capacity?