Using ASA's Flight Planner

A flight log is an important part in the preparation for a safe flight. The flight log is needed during flight to check your groundspeed and monitor flight progress to ensure you are staying on course. The Flight Planner has two sections; the Preflight side is used for pre-flight planning while the En Route side is used for navigation and groundspeed checks during the actual flight. Once the Flight Planner is complete you can fold the sheet in half to neatly fit on your kneeboard and display just the necessary information for your flight.

The following is an example of how to complete ASA's Flight Planner form when planning a VFR flight. You can use an E6-B flight computer or an electronic flight computer. The sample flight was calculated using a CX-2 electronic flight computer.

Step 1: Plot your course

Refer to figure 1-3 for an example of a flight route and checkpoints.

1. Mark your planned flight course on a sectional chart.

2. Determine checkpoints between your departure and destination airports that you will use as ground speed checks in-flight and as navigational aids to ensure you are on course.

3. Using your plotter, determine the true course and measure the distance between your checkpoints (will also be referred to as leg).
    1) Note the magnetic variation closest to your flight route

4. Determine the appropriate VFR cruising altitude using the terrain, obstructions and airspace along your route. You will also use your weather briefing information to help determine the best altitude for flight.

Step 2: Obtain weather information

You must obtain a weather briefing to receive important weather data for your flight route. The weather briefing includes many different pieces of weather data that a pilot needs to consider before flying. For the purpose of preflight planning using the Flight Planner, the following data points are necessary:

- Wind direction
- Wind velocity
- Temperature at cruising altitude
- Sky coverage, ceiling and freezing level for the purpose of establishing an appropriate and safe cruising altitude

Step 3: Preflight section of the Flight Planner

Once you have selected checkpoints, measured the true course and distance between them and obtained your weather briefing, the Preflight section can be completed. Refer to figure 1-1 for the key to each section listed.

To complete the Preflight side of the Flight Planner, you will need to know your checkpoint locations, true course between the checkpoints, intended altitude, wind direction and velocity from the weather briefing, the aircraft's true airspeed, magnetic variation from the sectional chart and compass deviation from your aircraft.

1. List each checkpoint, beginning with your departure airport.

2. Enter the true course measured with the plotter for each leg between the checkpoints.

3. Enter your intended cruising altitude for each leg of the flight.
   Note: Factors such as terrain, airspace and weather should be considered.

4. Enter the wind direction and velocity as given during the weather briefing.
   Note: Interpolation may be necessary for your specific cruising altitude.

5. Enter the temperature at your intended altitude as given during the weather briefing.
   Note: Interpolation may be necessary for your specific cruising altitude.

6. Enter your planned true airspeed.
   Note: This airspeed should be listed in the Pilot's Operating Handbook (POH).

7. Enter the computed wind correction angle.
   Note: This is only necessary if you are using an E6-B flight computer for your calculations; an electronic flight computer will calculate this for you.

8. Enter the computed true heading in the top box. The magnetic variation is entered in the lower box. Apply the magnetic variation to the true heading to obtain your magnetic heading.
   Note: If using the CX-2 electronic flight computer, the true heading and groundspeed are computed at the same time using true course, true airspeed, wind direction and velocity.
   Note: Easterly magnetic variation is subtracted from the true heading; Westerly magnetic variation is added to the true heading.

9. Enter the magnetic heading in the top box. The compass card deviation is entered in the lower box. Apply the deviation to the magnetic heading to obtain your compass heading.
   Note: The compass deviation card is located on a placard in the aircraft.

10. Enter the computed compass heading.

At the bottom of this section is the Terminal Information chart. Use this section to enter key information about the airports you will be departing from and flying to. Information such as elevation, runways in use, their length and surface as well as radio frequencies should go here.

Step 4: En Route section of the Flight Planner

Now that you have determined your aircraft's groundspeed, you can calculate your estimated time en route and fuel consumption. There are also boxes on this side of the Flight Planner that allow you to monitor flight progress by calculating groundspeed and time checks while en route.

11. Enter the distance of the leg in the top box of this section. The distance remaining for your flight is entered in the lower box.

12. Enter the computed groundspeed in the top box. The actual groundspeed, as determined by in-flight calculations, is entered in the lower box.
    Note: If using the CX-2 electronic flight computer, groundspeed can be determined at the same time that true heading is calculated. *See* notes above for Preflight section 8.

13. Enter your estimated time en route to each checkpoint in the top box. The actual time en route, as determined by in-flight calculations, is entered in the lower box.
    Note: If using the CX-2 electronic flight computer, this is calculated using the leg distance and groundspeed under Plan Leg in Flight mode.

14. Enter your estimated time of arrival at each checkpoint in the top box. The actual time of arrival will be entered in the lower box.

15. The fuel that will be used for the leg is entered in the top box. The fuel remaining is entered in the lower box.
    Note: If using the CX-2 electronic flight computer, fuel used is calculated using ETE and fuel consumption rate under Fuel Burn in Flight mode.

16. Enter the frequency for navigation aids to be used in that leg in the top box. The audible Morse code identifier is entered in the lower box.
    Note: This is an optional aid to navigating your flight route.

17. Enter the bearing you will track on the navigational aid in the top box. Indicate if you will be tracking 'to' or 'from' the bearing in the lower box.

18. Enter transponder or squawk codes given by air traffic control during your flight.

At the top of this section is a table that allows you to enter information you receive before takeoff; ATIS information, temperature, winds, altimeter settings, runways in use or that you are cleared to, time at takeoff and Hobbs meter start and end reading.

Example of a completed Flight Plan

This example is not intended for actual flight; for your flight planning you will need to reference current sectional charts, weather information, weight and balance data and the POH for your specific aircraft.

The Flight Planner in figure 1-2 has been completed based on the aircraft, flight route and weather information below. Using information on airspace, terrain and obstructions and weather information for this flight route, the cruising altitude is determined to be appropriate and safe at 7,500.

The aircraft

4 seat, fixed gear airplane	
Gross weight:	2,300 pounds
Empty weight:	1,364 pounds
Fuel capacity:	38 gallons (usable fuel)
Fuel consumption:	7 gallons per hour

Weather Information

Winds at 6,000 feet:	220° at 13 knots
Winds at 9,000 feet:	210° at 21 knots
Sky at departure:	10,000 feet scattered
Sky at arrival:	9,000 feet broken
Sky enroute:	6,000 feet broken
Freezing level:	8,000 – 13,000 feet

The flight

The proposed flight is from Olympia airport to Ellensburg airport using the V2 airway to help navigate the mountain pass. Figure 1-3 shows the flight route and checkpoints. For our flight route, the following checkpoints have been selected:

Olympia airport - Gray radio beacon – McChord Airforce Base – Lake Tapps – Palmer – Dam – Lester - Ellensburg

Weather Briefing

Use this form to log the information you receive when you obtain your pre-flight weather briefing.

Weight and Balance

Use this chart to enter weight information for the aircraft, fuel, passengers and baggage for your proposed flight. The POH lists the arm for these positions. The moment can be calculated using the weight and arm for each location. When the total weight and total moment for the aircraft are known, you can use the loading graphs in the POH to determine if the aircraft will be loaded within center of gravity (CG) limits.

Flight Plan

The flight plan template is a place for you to document the flight plan that you will file and then open with your local Flight Service Station.

Block 1:
Check the appropriate box for your flight, IFR, VFR or DVFR.

Block 2:
List the full registration number ("N" number) of the aircraft you will be flying.

Block 3:
List the aircraft's type, model and the special equipment capability. (Use the special equipment suffix list at the bottom of the form) *Example*: CE182/A = Cessna 182 with transponder with altitude encoding

Block 4:
List your computed true airspeed at your cruising altitude.

Block 5:
List your departure airport.

Block 6:
List your proposed departure time in UTC. Note that there is a second section to indicate your actual departure time. Use the conversion chart above to help in converting to UTC from your local time.

Block 7:
List your intended initial cruising altitude. If you have multiple altitudes during the flight you can indicate "VFR" in this section.

Block 8:
List your route by indicating the names of places, landmarks, navigational aids, etc. It is a good idea to use the checkpoints you will be using in your flight planning log.

Block 9:
List your destination airport.

Block 10:
List your estimated time en route (ETE) from departure airport to destination airport.

Block 11:
List any remarks that are helpful to ATC, such as "student pilot"

Block 12:
List the total fuel on board.

Block 13:
List alternative airport(s) if desired.

Block 14:
List your name and the aircraft's home base and/or operator. Provide a phone number for someone who is aware of your plans; the owner of the aircraft for example.

Block 15:
List the total number of persons on board.

Block 16:
List the main color(s) of the aircraft.

Flight Planner

AIRCRAFT	N2962U	TIME OFF	1700	BLOCK START		BLOCK END	
ATIS CODE	Oscar	SKY	10,000 Sc	TEMP		WIND	
		ALTIMETER	29.92	RUNWAY		EST GPH	7

Preflight

En Route

PLANNED TRUE COURSE	PLANNED ALTITUDE	PREDICTED WIND DIRECTION	PREDICTED WIND VELOCITY	TEMP	PLAN TAS	WIND CORR ANGLE -L +R	TRUE HEADING -E +W VAR	MAG HEADING ± DEV	Checkpoints DEPARTURE	COMPASS HEADING	DIST LEG REM	GS EST ACT	ETE ATE	ETA ATA	FUEL USED FUEL REM.	VOR FREQ IDENT	VOR BEARING TO/FROM	TRANSPONDER CODES "SQUAWKS"
049	7500	215	17	35	90		52	33	Olympia	034	16.5	106	14	1714	2			
							-18.5	+1	Gray		91				36			
071	7500	215	17	35	107		76	57.5	RBN	060	5	120	2.5	1716:30	.3			
							-18.5	+1.5	McChord		86				35.7			
071	7500	215	17	35	107		76	57.5	AFB	060	13	120	6.5	1723	.8			
							-18.5	+1.5	Lake Tapps		73				34.9			
071	7500	215	17	35	107		76	57.5		060	13	120	6.5	1729:30	.8	116.8	088	
							-18.5	+4	Palmer		60				34.1		FRM	
106	7500	215	17	35	107		114.5	96		100	6	111	3	1732:30	.4	117.9	088	
							-18.5	+4	Dam		54				33.7		TO	
106	7500	215	17	35	107		114.5	96		100	14	111	7.5	1740	.9	117.9	085	
							-18.5	+4	Lester		40				32.8		TO	
106	7500	215	17	35	107		114.5	96		100	40	111	22	1802	2.6	117.9	088	
							-18.5	+4	Ellensburg		0				30.8		TO	
									ARRIVAL	TOTALS	107.5		62		30.2			

Terminal Information

Field	Elevation	Runways	Radio Frequencies
OLY	206		124.4
McChord	323		124.8
Elensburg	1,763		UNICOM 1230

Notes:

open/close flt plan on 123.65 Seattle radio

Pilot Report FLIGHT WATCH 122.0 OR NEAREST FLIGHT SERVICE STATION

1 Report Type (PIREP, Urgent)	**2** Location	**3** Time (UTC)	**4** Altitude
5 Aircraft Type	**6** Clouds	**7** Weather	**8** Temperature
9 Wind	**10** Turbulence	**11** Icing	**12** Remarks

© 1989–2004 Aviation Supplies and Academics, Inc.

ASA-FP-2

Figure 1-1

Weather Briefing

LOCATION	TERMINAL AERODROME FORECASTS (TAF)

LOCATION	METAR

LOCATION	WINDS & TEMPERATURES ALOFT FORECASTS			
	ALT_____	ALT_____	ALT_____	ALT_____

LOCATION	PIREPS/SIGNIFICANT WEATHER/NOTAMS

Weight and Balance

	WEIGHT	X	ARM	=	MOMENT
EMPTY WEIGHT AIRCRAFT	1364		37.9		51,700
FRONT PASSENGERS	300		37.3		11,200
REAR PASSENGERS	185		72.97		13,500
FUEL GAL x 6#/GAL=	228		48.25		11,000
BAGGAGE	25		80		2,000
TOTAL GROSS WEIGHT	2117		TOTAL MOMENT		89,200

CG = TOTAL MOMENT / TOTAL WEIGHT = 42.5

GROSS WEIGHT AND CG WITHIN LIMITS?

Figure 1-2

Flight Plan

UTC Time Conversion

PST	+8	MST	+7	CST	+6	EST	+5
PDT	+7	MDT	+6	CDT	+5	EDT	+4

TYPE		2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
IFR						PROPOSED (Z)	ACTUAL (Z)	
VFR	X	2962U	C175	107 KNOTS	Olympia	1700		VFR
DVFR								

8. ROUTE OF FLIGHT

Olympia - Gray - Lake Tapps - Palmer - Ellensburg

9. DESTINATION (Name of airport and city)	10. EST. TIME EN ROUTE		11. REMARKS
	HOURS	MINUTES	
ELN Ellensburg	1	05	

12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS, TELEPHONE NO. AND AIRCRAFT HOME BASE	15. NO. ABOARD
HOURS	MINUTES		ASA Pilot	
5	25		17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	2

16. COLOR OF AIRCRAFT: White w/red Trim

CLOSE FLIGHT PLAN WITH _____ FSS ON ARRIVAL

Special Equipment Suffix

A - DME, Transponder With Mode C
B - DME, Transponder With No Mode C
C - RNAV, Transponder With No Mode C
D - DME, No Transponder
E - FMS, VNAV, Oceanic, En Route, Terminal Navigation and Approach Capability
F - Same as E, May Not Meet Requirements for Some Approach and Departure Operations
G - GPS
I - RNAV, With Mode C
M - TACAN Only, No Transponder
N - TACAN Only, Transponder With No Mode C
P - TACAN Only, Transponder With Mode C
Q - RNP and RVSM
R - RNP
T - Transponder With No Mode C
U - Transponder With Mode C
W - RVSM
X - No Transponder
Y - RNAV, No Transponder

Figure 1-3

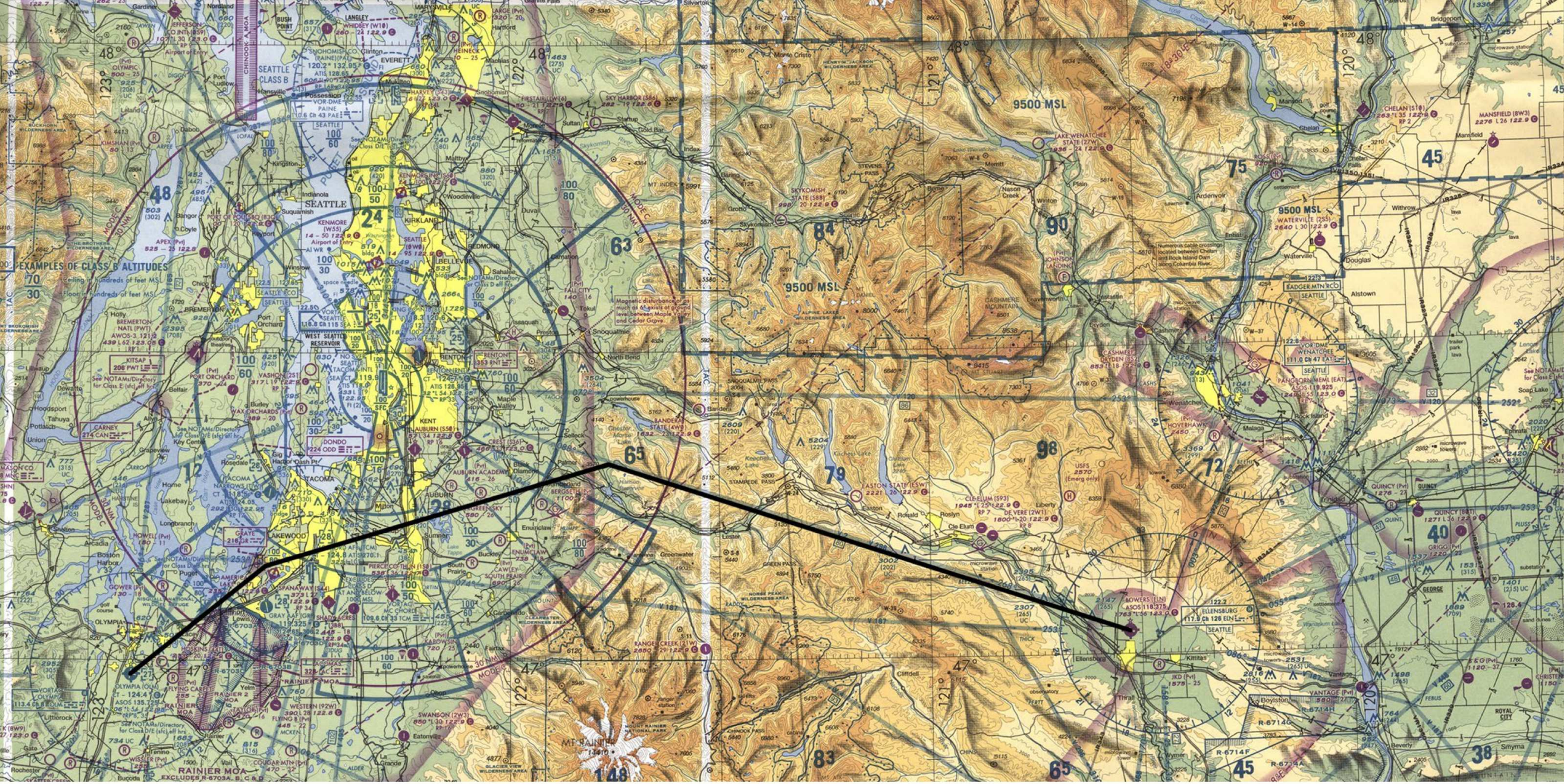
EXAMPLES OF CLASS B ALTITUDES
SEATTLE
9500 MSL
9500 MSL
9500 MSL
RAINIER MOA
MT RAINIER

Chart 1