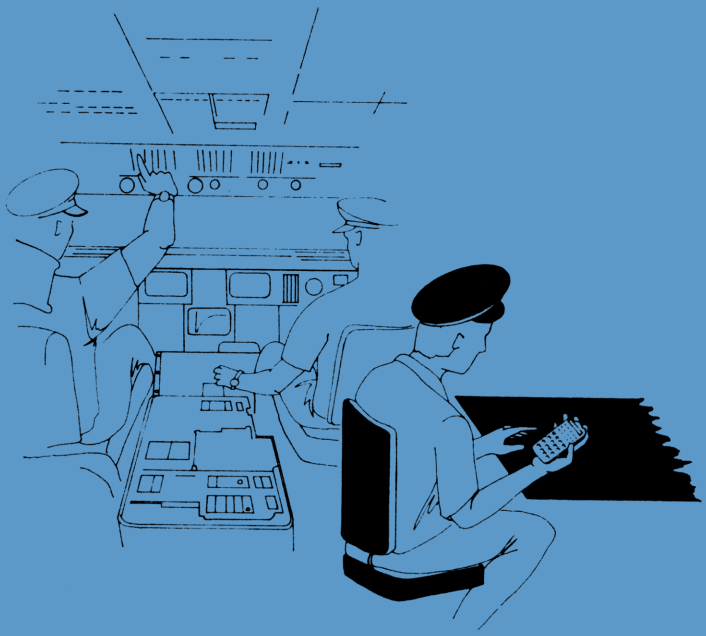


FLIGHT DECK

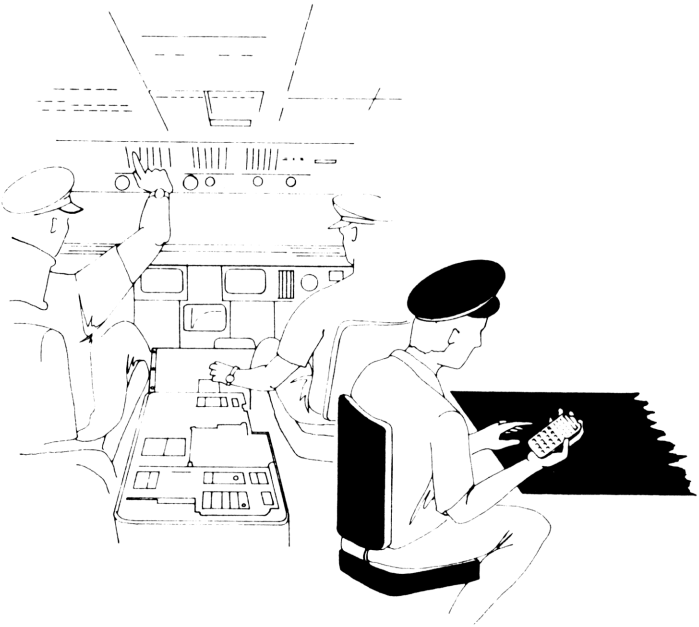
USES FOR THE

HP-25

VOL. I PROFESSIONAL ASSORTMENT

BY:
MELVIN N. PETERSON

MNP STAR ENTERPRISES



FLIGHT DECK

USES FOR THE

HP-25

VOL. I PROFESSIONAL ASSORTMENT

BY:
MELVIN N. PETERSON

MNP STAR ENTERPRISES

FIRST EDITION JULY 1979

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INTRODUCTION

The vocabulary and expertise employed on the Flight Deck is unique. Software for any calculator to be used thereon must also be unique.

The author holds the FAA Flight Navigator Certificate No. 1782965, and acquired approximately 2,000 transport flight deck hours.

This assortment of HP-25 Aero-Functions, was designed to be fully compatible with Flight Deck terminology.

This is an opportune point to suggest to the aviation community at large, that whenever software is considered for flight operations, that it be treated as a "back-up" to the user's current method of computation, until such time as the user has fully proven such software to be in accordance with his needs.

The versatility of Hewlett-Packard's HP-25 permits the user to solve problems in the following modes:

ONE CALCULATION AT A TIME, by completely keying-in each step listed in the Manual Run Mode...identified in this work by: MRM:.

TWO OR MORE CALCULATIONS, by using a common program, as keyed-in under the steps listed in the Program Mode...identified in this work by: PM:.

...followed by a complete set of variables for the first calculation, as listed in the section...identified in this work by: SITUATION:....(observing precisely the magnitudes specified therein...i.e. Feet, Knots, etc.)...which are keyed-in per the steps listed in the Automatic Run Mode ...identified in this work by: ARM:.

...each succeeding calculation, with its own specific variables, is processed as described in the previous paragraph.

Numerical Constants, when required, are described in the...SITUATION: section of each appropriate HP-25 Aero-Function, and must be keyed-in wherever specified in the modes: MRM:, PM:, or ARM: of that HP-25 Aero-Function.

The section entitled...FIND:...contains the answer(s) to the sample computation shown.

△ △ △

No liability is assumed with respect to the use of the information herein.

△ △ △

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OF
HP-25 AERO-FUNCTIONS

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* MRM only

CELSIUS (CENTIGRADE)

SITUATION:

A. Fahrenheit: 61°
B. Numerical Constant #1 for this page (NC_1): 32°
C. Numerical Constant #2 for this page (NC_2): 5
D. Numerical Constant #3 for this page (NC_3): 9

FIND:

A. Celsius (Centigrade): $16.11^{\circ}C$

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
61 ↑	61.00	$^{\circ}F$
32	32.	(NC_1)
-	29.00	
5	5.	(NC_2)
X	145.00	
9	9.	(NC_3)
÷	16.11	$^{\circ}C$

PM:

KEY-IN	X DISPLAY		
PRGM←	00		
f PRGM	00		
3	01	03	(NC_1)(Combined with next line)
2	02	02	
-	03	41	
5	04	05	(NC_2)
X	05	61	
9	06	09	(NC_3)
÷	07	71	

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
61 ↑	61.00	$^{\circ}F$
R/S	16.11	$^{\circ}C$

2.

CLIMB TIME

SITUATION: A. Vertical Distance to Cruise Altitude (VDCA): 37,000'
B. Rate of Climb (ROC): 1,500' Per Minute

FIND: A. Climb Time (CT): 24.67 Minutes

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
37,000 ↑	37,000.00	(VDCA)
1,500	1,500.	(ROC)
÷	24.67	(CT)(MM.mm)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
÷	03 71

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
37,000	37,000.	(VDCA)
STO 1	37,000.00	
1,500	1,500.	(ROC)
STO 2	1,500.00	
R/S	24.67	(CT)(MM.mm)

COMPASS HEADING

SITUATION:

A.	True Course (TC):	350°
B.	Variation (VAR):	20° WEST
C.	Deviation (DEV):	12° EAST
D.	Drift Angle (DA):	11° LEFT
E.	Numerical Constant for this page (NC_1):	360°

FIND:

A. Compass Heading (CH): 009°

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
350 ↑	350.00	(TC)
20	20.	(VAR)(If East, Key-In: CHS)
+	370.00	
12	12.	(DEV)(If East, Key-In: CHS)
CHS	-12.	
+	358.00	
11	11.	(DA)(If Right Drift, Key-In: CHS)
+	369.00	(CH)(If Negative, Key-In: 360 and +) (If over 360, Key-In: 360 and -) (If neither of the above is true, Display now shows (CH))
360	360.	(NC_1)
-	9.00	(CH)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
+	03 51
RCL 3	04 24 03
+	05 51
RCL 4	06 24 04
+	07 51
STO 6	08 23 06
g X<0	09 15 41
GTO 19	10 13 19
RCL 6	11 24 06
RCL 5	12 24 05
-	13 41
g X<0	14 15 41
GTO 17	15 13 17
R/S	16 74
RCL 6	17 24 06
R/S	18 74
RCL 6	19 24 06
RCL 5	20 24 05
+	21 51

COMPASS HEADING (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN↵	0.00	
	GTO 00	0.00	
	350	350.	(TC)
	STO 1	350.00	
	20	20.	(VAR)(If East, Key-In: CHS)
	STO 2	20.00	
	12	12.	(DEV)(If East, Key-In: CHS)
	CHS	-12.	
	STO 3	-12.00	
	11	11.	(DA)(If Right, Key-In: CHS)
	STO 4	11.00	
	360	360.	(NC_1)
	STO 5	360.00	
	R/S	9.00	(CH)

CRUISE TIME

SITUATION: Distance (DIST): 1,076 N.M.
Ground Speed In Cruise (GSIC): 510 Kts

FIND: Cruise Time (CT): 2 Hours, 06 Minutes, 35 Seconds

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
1,076 ↑	1,076.00	(DIST)
510	510.	(GSIC)
÷	2.11	
f →H.MS	2.06	
f FIX 4	2.0635	(CT)(H.MMSS)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
÷	03 71
f →H.MS	04 14 00
f FIX 4	05 14 11 04

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
1,076	1,076	(DIST)
STO 1	1,076.00	
510	510.	(GSIC)
STO 2	510.00	
R/S	2.0635	(CT)(H.MMSS)

6.

DESCENT TIME

SITUATION: A. Descent from Cruise Altitude (DFCA): 37,000'
B. Rate of Descent (ROD): 1,500' Per Minute

FIND: A. Descent Time (DT): 24.67 Minutes

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
37,000 ↑	37,000.00	(DFCA)
1,500	1,500.	(ROD)
÷	24.67	(DT)(MM.mm)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
÷	03 71

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
37,000	37,000.	(DFCA)
STO 1	37,000.00	
1,500	1,500.	(ROD)
STO 2	1,500.00	
R/S	24.67	(DT)(MM.mm)

DISTANCE FLOWN

SITUATION: A. Ground Speed (GS): 510 Knots
B. Flight Time (FT): 3 Hours, 14 Minutes, 45 Seconds

FIND: A. Distance Flown (DF): 1,655.38 N.M.

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
510 ↑	510.00	(GS)
3.1445	3.1445	(FT)(H.MMSS)
g →H	3.25	
X	1,655.38	(DF)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
X	03 61

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
510	510.	(GS)
STO 1	510.00	
3.1445	3.1445	(FT)(H.MMSS)
g →H	3.25	
STO 2	3.25	
R/S	1,655.38	(DF)

DRIFT CORRECTION: NEW COMPASS HEADING

SITUATION:

A. Distance Off True Course (DOTC): 4 NM LEFT
B. Ground Distance Flown...
to a point along the True Course,
which is at right angles to the last fix (GDF): 25 NM
C. Ground Distance Remaining...
along the True Course, from (GDF) above,
to the point of intercept (GDR): 115 NM
D. Compass Heading Flown, prior to correction (CHF): 90°
E. Numerical Constant for this page (NC_1): 360°

NOTE: The following factors are considered to be constant, from point of departure, to point of intercept:
- True Air Speed
- Variation
- Wind Direction
- Wind Velocity

FIND:

A. Drift Angle, prior to New Compass Heading (DA): 9.09° LEFT (D.dd)
B. Drift Correction: New Compass Heading (DC:NCH): 101.08° (DDD.dd)

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
4	4.	(DOTC)(If Left Drift: Key-In: STO 1) (If Right Drift: Key-In: CHS, before STO 1)
STO 1	4.00	
25	25.	(GDF)
÷	0.16	
g TAN^{-1}	9.09	(DA)(Positive = Left Drift) (Negative = Right Drift)
90	90.	(CHF)
+	99.09	
STO 2	99.09	
RCL 1	4.00	
115	115.	(GDR)
÷	0.03	
g TAN^{-1}	1.99	
g ABS	1.99	
RCL 2	99.09	
+	101.08	(DC:NCH)(If Negative: Add 360°) (If over 360°: Subtract 360°)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
÷	03 71
g TAN^{-1}	04 15 06
R/S	05 74
RCL 3	06 24 03
+	07 51
STO 0	08 23 00

(CONT.)

PM:(CONT.)	KEY-IN	X DISPLAY
	RCL 1	09 24 01
	RCL 4	10 24 04
	÷	11 71
	g TAN $^{-1}$	12 15 06
	g ABS	13 15 03
	RCL 0	14 24 00
	+	15 51
	STO 6	16 23 06
	g X<0	17 15 41
	GTO 24	18 13 24
	RCL 5	19 24 05
	-	20 41
	g X<0	21 15 41
	RCL 6	22 24 06
	R/S	23 74
	RCL 5	24 24 05
	+	25 51

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	4	4.	(DOTC)(If Left Drift: Key-In: STO 1) (If Right Drift: Key-In: CHS, before STO 1)
	STO 1	4.00	
	25	25.	(GDF)
	STO 2	25.00	
	90	90.	(CHF)
	STO 3	90.00	
	115	115.	(GDR)
	STO 4	115.00	
	360	360.	(NC_1)
	STO 5	360.00	
	R/S	9.09	(DA)(Positive = Left Drift) (Negative = Right Drift)
	R/S	101.08	(DC:NCH)

ESTIMATED TIME OF ARRIVAL

SITUATION:

A. Estimated Time of Departure (ETD): 2013 ZULU
B. Estimated Flight Time (EFT): 4 Hours, 27 Minutes
C. Numerical Constant #1 for this page (NC_1): 100
D. Numerical Constant #2 for this page (NC_2): 2400

FIND:

A. Estimated Time of Arrival (ETA): 0040* ZULU

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
f FIX 2	0.00	
20.13	20.13	(ETD)(HH.MM)(i.e. 2013 ZULU)
g →H	20.22	
4.27	4.27	(EFT)(H.MM)
g →H	4.45	
+	24.67	
f →H.MS	24.40	
100	100.	(NC_1)
X	2439.60	
f FIX 0	2440.	(ETA)(HHMM)(ZULU)(IF OVER 2400, Key-In: 2400 & -)
2400	2400.	(NC_2)
-	40.*	(ETA)(i.e. 0040 ZULU)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
+	03 51
f →H.MS	04 14 00
RCL 3	05 24 03
X	06 61
STO 5	07 23 05
RCL 4	08 24 04
X≷Y	09 21
f X≥Y	10 14 51
GTO 15	11 13 15
RCL 5	12 24 05
f FIX 0	13 14 11 00
SST	14 13 00
X≷Y	15 21
-	16 41
f FIX 0	17 14 11 00

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	f FIX 2	0.00	
	20.13	20.13	(ETD)(HH.MM)(i.e. 2013 ZULU)
	g →H	20.22	
	STO 1	20.22	
	4.27	4.27	(EFT)(H.MM)
	g →H	4.45	
	STO 2	4.45	
	100	100.	(NC_1)
	STO 3	100.00	
	2400	2400.	(NC_2)
	STO 4	2400.00	
	R/S	40.*	(ETA)(i.e. 0040 ZULU)

*The last display may be considered to be the equivalent to the normal four digit Zulu Time format, by adopting the following explanation and examples as valid:

Explanation: 1st digit left of the decimal = Minutes
2nd digit left of the decimal = Tens of Minutes
3rd digit left of the decimal = Hours
4th digit left of the decimal = Tens of Hours

Examples:

X DISPLAY		
9.	=	0009 ZULU
40.	=	0040 ZULU
200.	=	0200 ZULU
2359.	=	2359 ZULU
0.	=	0000 ZULU

FAHRENHEIT

SITUATION:

A. Celsius (Centigrade): 16.11°C
B. Numerical Constant #1 for this page (NC_1): 9
C. Numerical Constant #2 for this page (NC_2): 5
D. Numerical Constant #3 for this page (NC_3): 32°

FIND:

A. Fahrenheit: 61°F

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
16.11 ↑	16.11	°C
9	9.	(NC_1)
X	144.99	
5	5.	(NC_2)
+	29.00	
32	32.	(NC_3)
+	61.00	°F

PM:

KEY-IN	X DISPLAY		
PRGM→	00		
f PRGM	00		
RCL 1	01	24 01	
9	02	09	(NC_1)
X	03	61	
5	04	05	(NC_2)
+	05	71	
3	06	03	(NC_3)(Combined with next line)
2	07	02	
+	08	51	

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
16.11	16.11	°C
STO 1	16.11	
R/S	61.00	°F

FLIGHT PLAN, PER ZONE

SITUATION:	A.	True Course (TC):	256°	
	B.	Wind Direction, True (WD):	315°	
	C.	Numerical Constant #1 for this page (NC_1):	360°	
	D.	Numerical Constant #2 for this page (NC_2):	180°	
	E.	Wind Velocity (WV):	40	KTS
	F.	True Air Speed (TAS):	494	KTS
	G.	Zone Distance (DIST):	531	NM
	H.	Fuel Burnout, Rate (FBOR):	17.4	M#/HR
	I.	Fuel On Board, Start of Zone (FOBSZ):	21.94	M#
FIND:	A.	Drift (DA):	3.98°	LEFT
	B.	True Heading (TH):	259.98°	
	C.	Ground Speed (GS):	472.21	KTS
	D.	Estimated Flight Time (EFT):	1 Hr, 07 Mins, 28	Sec
	E.	Fuel Burnout, Estimated (FBOE):	19.57	M#
	F.	Fuel Remaining at End of Zone (FREZ):	2.37	M#

MRM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	256	256.	(TC)(If smaller than (WD), continue Key-In as shown) (If larger than (WD), Key-In STO 0 then skip to WD)
	STO 0	256.00	
	360	360.	(NC_1)(If (TC) larger than (WD), skip this line)
	+	616.00	(If (TC) larger than (WD), skip this line)
	315	315.	(WD)
	STO 1	315.00	
	-	301.00	
	180	180.	(NC_2)
	-	121.00	
	STO 2	121.00	
	f SIN	0.86	
	STO 3	0.86	
	40	40.	(WV)
	STO 4	40.00	
	X	34.29	
	494	494.	(TAS)
	STO 5	494.00	
	÷	0.07	
	g SIN^{-1}	3.98	(DA)(Left)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere) (If (DA) = 0° (±.99°), go now to: MRM Part 2)
	STO 6	3.98	
	RCL 2	121.00	
	+	124.98	
	180	180.	(NC_2)
	X⇄Y	124.98	
	-	55.02	
	STO 7	55.02	
	RCL 0	256.00	
	RCL 6	3.98	
	+	259.98	(TH)
	RCL 5	494.00	
	RCL 7	55.02	
	f SIN	0.82	
	X	404.76	
	RCL 3	0.86	
	÷	472.21	(GS)

(CONT.)

MRM:(CONT.)	KEY-IN	X DISPLAY	
	531	531.	(DIST)
	X<Y	472.21	
	÷	1.12	
	STO 0	1.12	
	f →H.MS	1.07	
	f FIX 4	1.0728	(EFT)(H.MMSS)
	f FIX 2	1.07	
	RCL 0	1.12	
	17.4	17.4	(FBOR)
	X	19.57	(FBOE)
	21.94	21.94	(FOBSZ)
	X<Y	19.57	
	-	2.37	(FREZ)

MRM PART 2:	KEY-IN	X DISPLAY	
	RCL 0	nnn.nn	(TC)
	RCL 1	nnn.nn	(WD)
	-	nnn.nn	(0.00 = Headwind: Continue Key-In as shown)
			(180.00 = Tailwind: Continue Key-In as shown, and especially note the need to Key-In CHS 4th line down)
	nnn	nnn.	(DIST)
	RCL 5	nnn.nn	(TAS)
	RCL 4	nnn.nn	(WV)
(Tailwind)	CHS	-nnn.nn	(If Headwind is indicated above, skip this line!)
	-	nnn.nn	(GS)
	÷	n.nn	
	STO 6	n.nn	
	f →H.MS	n.nn	
	f FIX 4	n.nnnn	(EFT)(H.MMSS)
	f FIX 2	n.nn	
	RCL 6	n.nn	
	nn.n	nn.nn	(FBOR)
	X	nn.nn	(FBOE)
	nn.nn	nn.nn	(FOBSZ)
	X<Y	nn.nn	(FBOE)
	-	n.nn	(FREZ)

FLIGHT TIME AVERAGE, MK-I

SITUATION:

A. Flight Time, Monday's Trip (FTMT): 2 Hours, 30 Minutes, 36 Seconds
B. Flight Time, Tuesday's Trip (FTTT): 1 Hour, 45 Minutes, 09 Seconds
C. Flight Time, Wednesday's Trip (FTWT): 2 Hours, 00 Minutes, 27 Seconds
D. Number of Trips to be Averaged (NTTBA): 3

FIND:

A. Flight Time, Average (FTA): 2 Hours, 05 Minutes, 24 Seconds

---

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
2.3036	2.3036	(FTMT)(H.MMSS)
g →H	2.51	
1.4509	1.4509	(FTTT)(H.MMSS)
g →H	1.75	
+	4.26	
2.0027	2.0027	(FTWT)(H.MMSS)
g →H	2.01	
+	6.27	
3	3.	(NTTBA)
÷	2.09	
f →H.MS	2.05	
f FIX 4	2.0524	(FTA)(H.MMSS)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
+	03 51
RCL 3	04 24 03
+	05 51
RCL 4	06 24 04
÷	07 71
f →H.MS	08 14 00
f FIX 4	09 14 11 04

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
2.3036	2.3036	(FTMT)(H.MMSS)
g →H	2.51	
STO 1	2.51	
1.4509	1.4509	(FTTT)(H.MMSS)
g →H	1.75	
STO 2	1.75	
2.0027	2.0027	(FTWT)(H.MMSS)
g →H	2.01	
STO 3	2.01	
3	3.	(NTTBA)
STO 4	3.00	
R/S	2.0524	(FTA)(H.MMSS)

FLIGHT TIME AVERAGE, MK-II

SITUATION:	A.	Flight Time, Monday's Trip (FTMT):	2 Hours, 30 Minutes, 36 Seconds
	B.	Flight Time, Tuesday's Trip (FTTT):	1 Hour, 45 Minutes, 09 Seconds
	C.	Flight Time, Wednesday's Trip (FTWT):	2 Hours, 00 Minutes, 27 Seconds
FIND:	A.	Flight Time, Average (FTA):	2 Hours, 05 Minutes, 24 Seconds

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
2.3036	2.3036	(FTMT)(H.MMSS)
g →H	2.51	
Σ+	1.00	
1.4509	1.4509	(FTTT)(H.MMSS)
g →H	1.75	
Σ+	2.00	
2.0027	2.0027	(FTWT)(H.MMSS)
g →H	2.01	
Σ+	3.00	
RCL 7	6.27	
RCL 3	3.00	
÷	2.09	
f →H.MS	2.05	
f FIX 4	2.0524	(FTA)(H.MMSS)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
RCL 0	01 24 00
Σ+	02 25
RCL 1	03 24 01
Σ+	04 25
RCL 2	05 24 02
Σ+	06 25
RCL 7	07 24 07
RCL 3	08 24 03
÷	09 71
f →H.MS	10 14 00
f FIX 4	11 14 11 04

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
2.3036	2.3036	(FTMT)(H.MMSS)
g →H	2.51	
STO 0	2.51	
1.4509	1.4509	(FTTT)(H.MMSS)
g →H	1.75	
STO 1	1.75	
2.0027	2.0027	(FTWT)(H.MMSS)
g →H	2.01	
STO 2	2.01	
R/S	2.0524	(FTA)(H.MMSS)

SITUATION:	A.	Flight	Time,	Day:	Last	Flight:				4:22	Hrs.Min.
	B.	"	"	Night:	"	"				3:01	" "
	C.	"	"	Day:	Current	Month,	Excluding	Last	Flight:	24:19	" "
	D.	"	"	Night:	"	"	"	"	"	18:59	" "
	E.	"	"	Day:	"	Year,	"	"	"	300:28	" "
	F.	"	"	Night:	"	"	"	"	"	297:04	" "
FIND:	A.	Flight	Time,	Combined:	Last	Flight:				7:23	Hrs.Min.
	B.	"	"	Day:	Current	Month,	Including	Last	Flight:	28:41	" "
	C.	"	"	Night:	"	"	"	"	"	22:00	" "
	D.	"	"	Combined:	"	"	"	"	"	50:41	" "
	E.	"	"	Day:	"	Year,	"	"	"	304:50	" "
	F.	"	"	Night:	"	"	"	"	"	300:05	" "
	G.	"	"	Combined:	"	"	"	"	"	604:55	" "

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
4.22	4.22	(Day: Last Flt)(H.MM)
g →H	4.37	
STO 1	4.37	
3.01	3.01	(Night: Last Flt)(H.MM)
g →H	3.02	
STO 2	3.02	
+	7.38	
STO 3	7.38	
f →H.MS	7.23	(Combined: Last Flt)(H.MM)
24.19	24.19	(Day: Cur. Month, Excl. Last Flt)(HH.MM)
g →H	24.32	
RCL 1	4.37	
+	28.68	
STO 4	28.68	
f →H.MS	28.41	(Day: Cur. Month, Incl. Last Flt)(HH.MM)
18.59	18.59	(Night: Cur. Month, Excl. Last Flt)(HH.MM)
g →H	18.98	
RCL 2	3.02	
+	22.00	
STO 5	22.00	
f →H.MS	22.00	(Night: Cur. Month, Incl. Last Flt)(HH.MM)
RCL 4	28.68	
RCL 5	22.00	
+	50.68	
STO 6	50.68	
f →H.MS	50.41	(Combined: Cur. Month, Incl. Last Flt)(HH.MM)
300.28	300.28	(Day: Cur. Year, Excl. Last Flt)(HHH.MM)
g →H	300.47	
RCL 1	4.37	
+	304.83	
STO 7	304.83	
f →H.MS	304.50	(Day: Cur. Year, Incl. Last Flt)(HHH.MM)
297.04	297.04	(Night: Cur. Year, Excl. Last Flt)(HHH.MM)
g →H	297.07	
RCL 2	3.02	
+	300.08	
STO 0	300.08	
f →H.MS	300.05	(Night: Cur. Year, Incl. Last Flt)(HHH.MM)
RCL 7	304.83	
RCL 0	300.08	
+	604.92	
f →H.MS	604.55	(Combined: Cur. Year, Incl. Last Flt)(HHH.MM)

FLIGHT TIME LOGGING (CONT.)

PM:	KEY-IN	X DISPLAY
	PRGM→	00
	f PRGM	00
	RCL 1	01 24 01
	RCL 2	02 24 02
	+	03 51
	STO 0	04 23 00
	f →H.MS	05 14 00
	R/S	06 74
	RCL 1	07 24 01
	RCL 3	08 24 03
	+	09 51
	f →H.MS	10 14 00
	R/S	11 74
	RCL 2	12 24 02
	RCL 4	13 24 04
	+	14 51
	f →H.MS	15 14 00
	R/S	16 74
	RCL 0	17 24 00
	RCL 3	18 24 03
	+	19 51
	RCL 4	20 24 04
	+	21 51
	f →H.MS	22 14 00
	R/S	23 74
	RCL 1	24 24 01
	RCL 5	25 24 05
	+	26 51
	f →H.MS	27 14 00
	R/S	28 74
	RCL 2	29 24 02
	RCL 6	30 24 06
	+	31 51
	f →H.MS	32 14 00
	R/S	33 74
	RCL 0	34 24 00
	RCL 5	35 24 05
	+	36 51
	RCL 6	37 24 06
	+	38 51
	f →H.MS	39 14 00
	R/S	40 74

FLIGHT TIME LOGGING (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	4.22	4.22	(Day: Last Flt)(H.MM)
	g →H	4.37	
	STO 1	4.37	
	3.01	3.01	(Night: Last Flt)(H.MM)
	g →H	3.02	
	STO 2	3.02	
	24.19	24.19	(Day: Cur. Month, Excl. Last Flt)(HH.MM)
	g →H	24.32	
	STO 3	24.32	
	18.59	18.59	(Night: Cur. Month, Excl. Last Flt)(HH.MM)
	g →H	18.98	
	STO 4	18.98	
	300.28	300.28	(Day: Cur. Year, Excl. Last Flt)(HHH.MM)
	g →H	300.47	
	STO 5	300.47	
	297.04	297.04	(Night: Cur. Year, Excl. Last Flt)(HHH.MM)
	g →H	297.07	
	STO 6	297.07	
	R/S	7.23	(Combined: Last Flt)(H.MM)
	R/S	28.41	(Day: Cur. Month, Incl. Last Flt)(HH.MM)
	R/S	22.00	(Night: Cur. Month, Incl. Last Flt)(HH.MM)
	R/S	50.41	(Combined: Cur. Month, Incl. Last Flt)(HH.MM)
	R/S	304.50	(Day: Cur. Year, Incl. Last Flt)(HHH.MM)
	R/S	300.05	(Night: Cur. Year, Incl. Last Flt)(HHH.MM)
	R/S	604.55	(Combined: Cur. Year, Incl. Last Flt)(HHH.MM)

FLIGHT TIME LOGGING, AND LEGAL TIME REMAINING

SITUATION:

A.	Flight Time: Last Flight:	7:23	Hrs.Min.
B.	Flight Time: Current Consecutive 7 Days, Exclud. Last Flt:	22:30	" "
C.	Flight Time: Current Calendar Month, Excluding Last Flt:	43:18	" "
D.	Flight Time: Current Calendar Year, Excluding Last Flt:	597:32	" "
E.	Flight Time, Maximum: In Any Consecutive 7 Days:	30:00	" "
F.	Flight Time, Maximum: In Any Calendar Month:	100:00	" "
G.	Flight Time, Maximum: In Any Calendar Year:	1,000:00	" "

FIND:

A.	Flight Time: Current Consecutive 7 Days, Includ. Last Flt:	29:53	Hrs.Min.
B.	Flight Time legally Remaining: Current Consec. 7 Days:	0:07	" "
C.	Flight Time: Current Calendar Month, Including Last Flt:	50:41	" "
D.	Flight Time Legally Remaining: Current Calendar Month:	49:19	" "
E.	Flight Time: Current Calendar Year, Including Last Flt.	604:55	" "
F.	Flight Time Legally Remaining: Current Calendar Year:	395:05	" "

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
7.23	7.23	(Last Flt)(H.MM)
g →H	7.38	
STO 1	7.38	
22.30	22.30	(Cur. Consec. 7 Days, Excl. Last Flt)(HH.MM)
g →H	22.50	
+	29.88	
STO 2	29.88	
f →H.MS	29.53	(Cur. Consec. 7 Days, Incl. Last Flt)(HH.MM)
30	30.	(Max: Consec. 7 Days)(HH.)
RCL 2	29.88	
-	0.12	
f →H.MS	0.07	(Legally Remaining: Cur. Consec. 7 Days)(H.MM)
RCL 1	7.38	
43.18	43.18	(Cur. Month, Excl. Last Flt)(HH.MM)
g →H	43.30	
+	50.68	
STO 3	50.68	
f →H.MS	50.41	(Cur. Month, Incl. Last Flt)(HH.MM)
100	100.	(Max: Month)(HHH.)
RCL 3	50.68	
-	49.32	
f →H.MS	49.19	(Legally Remaining: Cur. Month)(HH.MM)
RCL 1	7.38	
597.32	597.32	(Cur. Year, Excl. Last Flt)(HH.MM)
g →H	597.53	
+	604.92	
STO 4	604.92	
f →H.MS	604.55	(Cur. Year, Incl. Last Flt)(HHH.MM)
1,000	1,000.	(Max: Year)(HHHH.)
RCL 4	604.92	
-	395.08	
f →H.MS	395.05	(Legally Remaining: Cur. Year)(HHH.MM)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
+	03 51
STO 0	04 23 00
f →H.MS	05 14 00
R/S	06 74
RCL 5	07 24 05
RCL 0	08 24 00
-	09 41
f →H.MS	10 14 00
R/S	11 74
RCL 1	12 24 01
RCL 3	13 24 03
+	14 51
STO 0	15 23 00
f →H.MS	16 14 00
R/S	17 74
RCL 6	18 24 06
RCL 0	19 24 00
-	20 41
f →H.MS	21 14 00
R/S	22 74
RCL 1	23 24 01
RCL 4	24 24 04
+	25 51
STO 0	26 23 00
f →H.MS	27 14 00
R/S	28 74
RCL 7	29 24 07
RCL 0	30 24 00
-	31 41
f →H.MS	32 14 00

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
7.23	7.23	(Last Flt)(H.MM)
g →H	7.38	
STO 1	7.38	
22.30	22.30	(Cur. Consec. 7 Days, Excl. Last Flt)(HH.MM)
g →H	22.50	
STO 2	22.50	
43.18	43.18	(Cur. Month, Excl. Last Flt)(HH.MM)
g →H	43.30	
STO 3	43.30	
597.32	597.32	(Cur. Year, Excl. Last Flt)(HHH.MM)
g →H	597.53	
STO 4	597.53	
30	30.	(Max: Consec. 7 Days)(HH.)
STO 5	30.00	
100	100.	(Max: Month)(HHH.)
STO 6	100.00	
1,000	1,000.	(Max: Year)(HHHH.)
STO 7	1,000.00	
R/S	29.53	(Cur. Consec. 7 Days, Incl. Last Flt)(HH.MM)
R/S	0.07	(Legally Remaining: Cur. Consec. 7 Days)(H.MM)
R/S	50.41	(Cur. Month, Incl. Last Flt)(HH.MM)
R/S	49.19	(Legally Remaining: Cur. Month)(HH.MM)
R/S	604.55	(Cur. Year, Incl. Last Flt)(HHH.MM)
R/S	395.05	(Legally Remaining: Cur. Year)(HHH.MM)

FUEL BURNOUT, CLIMB

SITUATION: A. Rate of Burnout, Climb (RBOCL): 500 Pounds Per Minute
B. Estimated Time of Climb (ETOCL): 28 Minutes

FIND: A. Fuel Burnout, Climb (FBOCL): 14,000 Pounds

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
500 ↑	500.00	(RBOCL)
28	28.	(ETOCL)
X	14,000.00	(FBOCL)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
X	03 61

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
500	500.	(RBOCL)
STO 1	500.00	
28	28.	(ETOCL)
STO 2	28.00	
R/S	14,000.00	(FBOCL)

FUEL BURNOUT, CLIMB, CRUISE, DESCENT AND TOTAL

SITUATION:

A.	Rate of Burnout, Climb (RBOCL):	500 Pounds Per Minute
B.	Estimated Time of Climb (ETOCL):	28 Minutes
C.	Rate of Burnout, Cruise (RBOCR):	16,000 Pounds Per Hour
D.	Estimated Time of Cruise (ETOCR):	4 Hours, 30 Minutes, 30 Seconds
E.	Rate of Burnout, Descent (RBODES):	125 Pounds Per Minute
F.	Estimated Time of Descent (ETODES):	28 Minutes

FIND:

A.	Fuel Burnout, Climb (FBOCL):	14,000 Pounds
B.	Fuel Burnout, Cruise (FBOCR):	72,133.33 Pounds
C.	Fuel Burnout, Descent (FBODES):	3,500 Pounds
D.	Fuel Burnout, Total (FBOT):	89,633.33 Pounds

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
500 ↑	500.00	(RBOCL)
28	28.	(ETOCL)(MM.)
X	14,000.00	(FBOCL)
STO 1	14,000.00	
16,000 ↑	16,000.00	(RBOCR)
4.3030	4.3030	(ETOCR)(H.MMSS)
g →H	4.51	
X	72,133.33	(FBOCR)
STO 2	72,133.33	
125 ↑	125.00	(RBODES)
28	28.	(ETODES)(MM.)
X	3,500.00	(FBODES)
RCL 1	14,000.00	
+	17,500.00	
RCL 2	72,133.33	
+	89,633.33	(FBOT)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
X	03 61
STO 0	04 23 00
R/S	05 74
RCL 3	06 24 03
RCL 4	07 24 04
X	08 61
STO 7	09 23 07
R/S	10 74
RCL 5	11 24 05
RCL 6	12 24 06
X	13 61
R/S	14 74
RCL 0	15 24 00
+	16 51
RCL 7	17 24 07
+	18 51

FUEL BURNOUT, CLIMB, CRUISE, DESCENT AND TOTAL (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	500	500.	(RBOCL)
	STO 1	500.00	
	28	28.	(ETOCL)(MM.)
	STO 2	28.00	
	16,000	16,000.	(RBOCR)
	STO 3	16,000.00	
	4.3030	4.3030	(ETOCR)(H.MMSS)
	g →H	4.51	
	STO 4	4.51	
	125	125.	(RBODES)
	STO 5	125.00	
	28	28.	(ETODES)(MM.)
	STO 6	28.00	
	R/S	14,000.00	(FBOCL)
	R/S	72,133.33	(FBOCR)
	R/S	3,500.00	(FBODES)
	R/S	89,633.33	(FBOT)

FUEL BURNOUT, CRUISE

SITUATION: A. Rate of Burnout, Cruise (RBOCR): 16,000 Pounds Per Hour
B. Estimated Time of Cruise (ETOCR): 4 Hours, 30 Minutes, 30 Seconds

FIND: A. Fuel Burnout, Cruise (FBOCR): 72,133.33 Pounds

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
16,000 ↑	16,000.00	(RBOCR)
4.3030	4.3030	(ETOCR)(H.MMSS)
g →H	4.51	
X	72,133.33	(FBOCR)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
X	03 61

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
16,000	16,000.	(RBOCR)
STO 1	16,000.00	
4.3030	4.3030	(ETOCR)(H.MMSS)
g →H	4.51	
STO 2	4.51	
R/S	72,133.33	(FBOCR)

FUEL BURNOUT, CRUISE, THREE SEGMENTS

SITUATION:

A.	Rate of Burnout, Cruise (RBOCR):	60 Gallons Per Hour
B.	Estimated Time of Cruise, 1st Segment (ETOCR-1):	2 Hrs, 00 Min, 00 Sec
C.	Estimated Time of Cruise, 2nd Segment (ETOCR-2):	1 Hr, 55 Min, 30 Sec
D.	Estimated Time of Cruise, 3rd Segment (ETOCR-3):	2 Hrs, 04 Min, 30 Sec

FIND:

A.	Fuel Burnout, Cruise, 1st Segment (FBOCR-1):	120.00 Gallons
B.	Fuel Burnout, Cruise, 2nd Segment (FBOCR-2):	115.50 Gallons
C.	Fuel Burnout, Cruise, 3rd Segment (FBOCR-3):	124.50 Gallons
D.	Fuel Burnout, Cruise, Total (FBOCR-T):	360.00 Gallons

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
60	60.	(RBOCR)
STO 0	60.00	
2.0000	2.0000	(ETOCR-1)(H.MMSS)
g →H	2.00	
X	120.00	(FBOCR-1)
STO 1	120.00	
RCL 0	60.00	
1.5530	1.5530	(ETOCR-2)(H.MMSS)
g →H	1.93	
X	115.50	(FBOCR-2)
STO 2	115.50	
RCL 0	60.00	
2.0430	2.0430	(ETOCR-3)(H.MMSS)
g →H	2.08	
X	124.50	(FBOCR-3)
RCL 1	120.00	
+	244.50	
RCL 2	115.50	
+	360.00	(FBOCR-T)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 0	01 24 00
RCL 1	02 24 01
X	03 61
STO 4	04 23 04
R/S	05 74
RCL 0	06 24 00
RCL 2	07 24 02
X	08 61
STO 5	09 23 05
R/S	10 74
+	11 51
RCL 0	12 24 00
RCL 3	13 24 03
X	14 61
R/S	15 74
+	16 51

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	60	60.	(RBOCR)
	STO 0	60.00	
	2.0000	2.0000	(ETOCR-1)(H.MMSS)
	g →H	2.00	
	STO 1	2.00	
	1.5530	1.5530	(ETOCR-2)(H.MMSS)
	g →H	1.93	
	STO 2	1.93	
	2.0430	2.0430	(ETOCR-3)(H.MMSS)
	g →H	2.08	
	STO 3	2.08	
	R/S	120.00	(FBOCR-1)
	R/S	115.50	(FBOCR-2)
	R/S	124.50	(FBOCR-3)
	R/S	360.00	(FBOCR-T)

FUEL BURNOUT, DESCENT

SITUATION: A. Rate of Burnout, Descent (RBODES): 125 Pounds Per Minute
B. Estimated Time of Descent (ETODES): 28 Minutes

FIND: A. Fuel Burnout, Descent (FBODES): 3,500 Pounds

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
125 ↑	125.00	(RBODES)
28	28.	(ETODES)
X	3,500.00	(FBODES)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
X	03 61

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
125	125.	(RBODES)
STO 1	125.00	
28	28.	(ETODES)
STO 2	28.00	
R/S	3,500.00	(FBODES)

FUEL BURNOUT, RATE OF, MK-I

SITUATION:

A. Fuel on board at start of test (FOBSOT): 60,000#
B. Fuel on board at end of test (FOBEOT): 42,000#
C. Actual Flight Time of test (AFTOT): 1 Hour, 12 Minutes

FIND:

A. Fuel burned out during test (FBODT): 18,000#
B. Rate of burnout per hour (RBOPH): 15,000# Per Hour

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
60,000 ↑	60,000.00	(FOBSOT)
42,000	42,000.	(FOBEOT)
-	18,000.00	(FBODT)
1.12	1.12	(AFTOT)(H.MM)
g →H	1.20	
÷	15,000.00	(RBOPH)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
-	03 41
R/S	04 74
RCL 3	05 24 03
÷	06 71

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
60,000	60,000.	(FOBSOT)
STO 1	60,000.00	
42,000	42,000.	(FOBEOT)
STO 2	42,000.00	
1.12	1.12	(AFTOT)(H.MM)
g →H	1.20	
STO 3	1.20	
R/S	18,000.00	(FBODT)
R/S	15,000.00	(RBOPH)

FUEL BURNOUT, RATE OF, MK-II

SITUATION:

A. Fuel on board at start of test (FOBSOT): 60,000#
B. Time test started (TTS): 1600Z
C. Fuel on board at end of test (FOBEOT): 42,000#
D. Time test ended (TTE): 1712Z

FIND:

A. Fuel burned out during test (FBODT): 18,000#
B. Actual flight time of test (AFTOT): 1 Hour, 12 Minutes
C. Rate of burnout per hour (RBOPH): 15,000# Per Hour

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
60,000 ↑	60,000.00	(FOBSOT)
42,000	42,000.	(FOBEOT)
-	18,000.00	(FBODT)
STO 1	18,000.00	
16.00	16.00	(TTS)(HH.MM)(ZULU)
g →H	16.00	
17.12	17.12	(TTE)(HH.MM)
g →H	17.20	
X<Y	16.00	
-	1.20	
STO 2	1.20	
f →H.MS	1.12	(AFTOT)(H.MM)
RCL 1	18,000.00	(FBODT)
RCL 2	1.20	
÷	15,000.00	(RBOPH)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 3	02 24 03
-	03 41
STO 5	04 23 05
R/S	05 74
RCL 4	06 24 04
RCL 2	07 24 02
-	08 41
STO 6	09 23 06
f →H.MS	10 14 00
R/S	11 74
RCL 5	12 24 05
RCL 6	13 24 06
÷	14 71

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	60,000	60,000.	(FOBSOT)
	STO 1	60,000.00	
	16.00	16.00	(TTS)(HH.MM)(ZULU)
	g →H	16.00	
	STO 2	16.00	
	42,000	42,000.	(FOBEOT)
	STO 3	42,000.00	
	17.12	17.12	(TTE)(HH.MM)(ZULU)
	g →H	17.20	
	STO 4	17.20	
	R/S	18,000.00	(FBODT)
	R/S	1.12	(AFTOT)(H.MM)
	R/S	15,000.00	(RBOPH)

FUEL REMAINING, AFTER CLIMB, CRUISE AND DESCENT

SITUATION:

A.	Total Fuel On Board at the End of the Takeoff Runway (TFOB):	116,000#
B.	Fuel Burnout in Climb (FBOCL):	14,000#
C.	Fuel Burnout in Cruise (FBOCR):	72,133#
D.	Fuel Burnout in Descent (FBODES):	3,500#

FIND:

A.	Fuel Remaining at Reaching Cruise Altitude (FRRCA):	102,000#
B.	Fuel Remaining at Reaching Point of Descent (FRPOD):	29,867#
C.	Fuel Remaining on Landing (FROL):	26,367#

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
116,000 ↑	116,000.00	(TFOB)
14,000	14,000	(FBOCL)
-	102,000.00	(FRRCA)
72,133	72,133.	(FBOCR)
-	29,867.00	(FRPOD)
3,500	3,500.	(FBODES)
-	26,367.00	(FROL)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
-	03 41
R/S	04 74
RCL 3	05 24 03
-	06 41
R/S	07 74
RCL 4	08 24 04
-	09 41

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
116,000	116,000.	(TFOB)
STO 1	116,000.00	
14,000	14,000.	(FBOCL)
STO 2	14,000.00	
72,133	72,133.	(FBOCR)
STO 3	72,133.00	
3,500	3,500.	(FBODES)
STO 4	3,500.00	
R/S	102,000.00	(FRRCA)
R/S	29,867.00	(FRPOD)
R/S	26,367.00	(FROL)

FUEL REMAINING IN HOURS, MINUTES AND SECONDS; CRUISE

SITUATION: A. Fuel On Board, Over Last Fix (FOBOLF): 37,400#
B. Rate of Fuel Burnout In Cruise (ROFBOIC): 16,000# Per Hour

FIND: A. Fuel Remaining in Hours, Minutes and Seconds; Cruise (FRIHMSC): 2 Hrs, 20 Min, 15 Sec

---

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
37,400 ↑	37,400.00	(FOBOLF)
16,000	16,000.	(ROFBOIC)
÷	2.34	
f →H.MS	2.20	
f FIX 4	2.2015	(FRIHMSC)(H.MMSS)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
÷	03 71
f →H.MS	04 14 00
f FIX 4	05 14 11 04

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
37,400	37,400.	(FOBOLF)
STO 1	37,400.00	
16,000	16,000.	(ROFBOIC)
STO 2	16,000.00	
R/S	2.2015	(FRIHMSC)(H.MMSS)

GREAT CIRCLE, DISTANCE

SITUATION:

A.	Longitude, Initial (λ_I):	45°00'00" WEST
B.	Longitude, Final (λ_F):	60°00'00" EAST
C.	Latitude, Initial (LAT_I):	15°00'00" NORTH
D.	Latitude, Final (LAT_F):	60°00'00" NORTH
E.	Numerical Constant #1 for this page (NC_1):	1
F.	Numerical Constant #2 for this page (NC_2):	2
G.	Numerical Constant #3 for this page (NC_3):	60
H.	Numerical Constant #4 for this page (NC_4):	90

FIND:

A. Great Circle, Distance (GC:DIST): 5,058.61 NM

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
45.0000	45.0000	(λ_I)(DD.MMSS)(If East, Key-In: CHS)
g →H	45.00	
60.0000	60.0000	(λ_F)(DD.MMSS)(If East, Key-In: CHS)
CHS	-60.0000	
g →H	-60.00	
-	105.00	
f COS	-0.26	
1	1.	(NC_1)
X⇄Y	-0.26	
-	1.26	
2	2	(NC_2)
÷	0.63	
90	90.	(NC_4)
STO 1	90.00	
15.0000	15.0000	(LAT_I)(DD.MMSS)(If South, Key-In: CHS)
g →H	15.00	
-	75.00	
STO 2	75.00	
f SIN	0.97	
STO 3	0.97	
X	0.61	
RCL 1	90.00	(NC_4)
60.0000	60.0000	(LAT_F)(DD.MMSS)(If South, Key-In: CHS)
g →H	60.00	
-	30.00	
STO 4	30.00	
f SIN	0.50	
X	0.30	
RCL 2	75.00	
RCL 4	30.00	
-	45.00	
f COS	0.71	
1	1.	(NC_1)
X⇄Y	0.71	
-	0.29	
2	2.	(NC_2)
÷	0.15	
+	0.45	
2	2.	(NC_2)
X	0.90	
1	1.	(NC_1)

(CONT.)

MRM:(CONT.)	KEY-IN	X DISPLAY	
	X⇄Y	0.90	
	-	0.10	
	g COS^{-1}	84.31	
	60	60.	(NC_3)
	X	5058.61	(GC DIST)(NM)

PM:	KEY-IN	X DISPLAY	
	PRGM	00	
	f PRGM	00	
	1	01 01	(NC_1)
	RCL 1	02 24 01	
	RCL 2	03 24 02	
	-	04 41	
	f COS	05 14 05	
	-	06 41	
	2	07 02	(NC_2)
	÷	08 71	
	RCL 6	09 24 06	
	RCL 3	10 24 03	
	-	11 41	
	STO 7	12 23 07	
	f SIN	13 14 04	
	X	14 61	
	RCL 6	15 24 06	
	RCL 4	16 24 04	
	-	17 41	
	STO 0	18 23 00	
	f SIN	19 14 04	
	X	20 61	
	RCL 7	21 24 07	
	RCL 0	22 24 00	
	-	23 41	
	f COS	24 14 05	
	1	25 01	(NC_1)
	X⇄Y	26 21	
	-	27 41	
	2	28 02	(NC_2)
	÷	29 71	
	+	30 51	
	2	31 02	(NC_2)
	X	32 61	
	1	33 01	(NC_1)
	X⇄Y	34 21	
	-	35 41	
	g COS^{-1}	36 15 05	
	RCL 5	37 24 05	
	X	38 61	

GREAT CIRCLE, DISTANCE (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	45.0000	45.0000	(λ_I)(DD.MMSS)(If East, Key-In: CHS)
	g →H	45.00	
	STO 1	45.00	
	60.0000	60.0000	(λ_F)(DD.MMSS)(If East, Key-In: CHS)
	CHS	-60.0000	
	g →H	-60.00	
	STO 2	-60.00	
	15.0000	15.0000	(LAT_I)(DD.MMSS)(If South, Key-In: CHS)
	g →H	15.00	
	STO 3	15.00	
	60.0000	60.0000	(LAT_F)(DD.MMSS)(If South, Key-In: CHS)
	g →H	60.00	
	STO 4	60.00	
	60	60.	(NC_3)
	STO 5	60.00	
	90	90.	(NC_4)
	STO 6	90.00	
	R/S	5058.61	(GC:DIST)(NM)

GREAT CIRCLE, TRUE COURSE, INITIAL

SITUATION:

A.	Great Circle, Distance (GC:DIST):	5,058.61 NM
B.	Latitude, Initial (LAT_I):	15°00'00" NORTH
C.	Latitude, Final (LAT_F):	60°00'00" NORTH
D.	Numerical Constant #1 for this page (NC_1):	1
E.	Numerical Constant #2 for this page (NC_2):	2
F.	Numerical Constant #3 for this page (NC_3):	60
G.	Numerical Constant #4 for this page (NC_4):	90

FIND: A. Great Circle, True Course, Initial ($GC:TC_I$): 29.04° (DDD.dd)

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
1 ↑	1.00	(NC_1)
90	90.	(NC_4)
STO 1	90.00	
60.0000	60.0000	(LAT_F)(DD.MMSS)(If South, Key-In: CHS)
g →H	60.00	
-	30.00	
f COS	0.87	
-	0.13	
2	2.	(NC_2)
÷	0.07	
STO 2	0.07	
1	1.	(NC_1)
RCL 1	90.00	
15.0000	15.0000	(LAT_I)(DD.MMSS)(If South, Key-In: CHS)
g →H	15.00	
-	75.00	
STO 3	75.00	
5058.61 ↑	5058.61	(GC:DIST)(NM)
60	60.	(NC_3)
÷	84.31	(GC:DIST)(DD.dd)
STO 4	84.31	
-	-9.31	
f COS	0.99	
-	0.01	
2	2.	(NC_2)
÷	0.01	
RCL 2	0.07	
X⇄Y	0.01	
-	0.06	
RCL 3	75.00	
f SIN	0.97	
RCL 4	84.31	(GC:DIST)(DD.dd)
f SIN	1.00	
X	0.96	
÷	0.06	
2	2.	(NC_2)
X	0.13	
1	1.	(NC_1)
X⇄Y	0.13	
-	0.87	
g COS^{-1}	29.04	($GC:TC_I$)(DD.dd)(If (LAT_F) is less than 180° West of (LAT_I), Key-In: 360 and X⇄Y and -)

(If the above does not apply, Display now shows: ($GC:TC_I$))

GREAT CIRCLE, TRUE COURSE, INITIAL (CONT.)

PM:	KEY-IN	X DISPLAY	
	PRGM→	00	
	f PRGM	00	
	1	01 01	(NC_1)
	↑	02 31	
	RCL 4	03 24 04	
	RCL 2	04 24 02	
	-	05 41	
	f COS	06 14 05	
	-	07 41	
	2	08 02	(NC_2)
	+	09 71	
	STO 2	10 23 02	
	RCL 4	11 24 04	
	RCL 1	12 24 01	
	-	13 41	
	STO 6	14 23 06	
	RCL 0	15 24 00	
	RCL 3	16 24 03	
	÷	17 71	
	-	18 41	
	f COS	19 14 05	
	1	20 01	(NC_1)
	X⇄Y	21 21	
	-	22 41	
	2	23 02	(NC_2)
	÷	24 71	
	RCL 2	25 24 02	
	X⇄Y	26 21	
	-	27 41	
	STO 7	28 23 07	
	RCL 6	29 24 06	
	f SIN	30 14 04	
	RCL 0	31 24 00	
	RCL 3	32 24 03	
	÷	33 71	
	f SIN	34 14 04	
	X	35 61	
	RCL 7	36 24 07	
	X⇄Y	37 21	
	÷	38 71	
	2	39 02	(NC_2)
	X	40 61	
	1	41 01	(NC_1)
	X⇄Y	42 21	
	-	43 41	
	g COS^{-1}	44 15 05	
	RCL 5	45 24 05	
	+	46 51	
	g ABS	47 15 03	

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	5058.61	5058.61	(GC:DIST)(NM)
	STO 0	5058.61	
	15.0000	15.0000	(LAT_I)(NORTH)(DD.MMSS)(If South, Key-In: CHS)
	g →H	15.00	
	STO 1	15.00	
	60.0000	60.0000	(LAT_F)(NORTH)(DD.MMSS)(If South, Key-In: CHS)
	g →H	60.00	
	STO 2	60.00	
	60	60.	(NC_3)
	STO 3	60.00	
	90	90.	(NC_4)
	STO 4	90.00	
			(If the Destination's Longitude (i.e. (λ_F)), is less than 180° West of the Initial Longitude (i.e. (λ_I)), Key-In: 360 and CHS and STO 5)
	0	0.	(If the above does not apply, Key-In: 0 and STO 5)
	STO 5	0.00	(Assume that (λ_I) = 45°W, and (λ_F) = 60°E)
	R/S	29.04	(GC:TC_I)

GROUND SPEED

SITUATION: A. Distance Flown (DIST): 1,000 NM
B. Actual Flight Time (AFT): 2 HRS, 45 MINS, 30 SECS

FIND: A. Ground Speed (GS): 362.54 KNOTS

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
1000 ↑	1000.00	(DIST)(NM)
2.4530	2.4530	(AFT)(H.MMSS)
g →H	2.76	
÷	362.54	(GS)(KNOTS)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
÷	01 71

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
1000 ↑	1000.00	(DIST)(NM)
2.4530	2.4530	(AFT)(H.MMSS)
g →H	2.76	
R/S	362.54	(GS)(KNOTS)

LOAD PLANNING

SITUATION:	A.	Operating Weight of Aircraft:	50,000#
	B.	Fuel Weight, Minimum, at the starting end of Takeoff Runway:	100,000#
	C.	Passengers and Baggage Weight:	75,000#
	D.	Mail Weight (Initial amount boarded):	25,000#
	E.	Freight Weight:	60,000#
	F.	Mail Weight (Boarded at the last minute):	15,000#
	G.	Maximum Allowable Takeoff Gross Weight:	350,000#
FIND:	A.	Total Gross Weight (Prior to boarding last minute Mail):	310,000#
	B.	Weight Available for Additional Payload/Fuel (Prior to boarding last minute Mail):	40,000#
	C.	Total Gross Weight (After boarding last minute Mail):	325,000#
	D.	Weight Available for Additional Payload/Fuel (After boarding last minute Mail):	25,000#

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
350,000	350,000.	Maximum Allowable Takeoff Gross Weight
STO 0	350,000.00	
50,000	50,000.	Operating Weight of Aircraft
STO 1	50,000.00	
100,000	100,000.	Fuel Weight, Minimum, at the starting
STO 2	100,000.00	end of Takeoff Runway
+	150,000.00	
75,000	75,000.	Passengers and Baggage Weight
STO 3	75,000.00	
+	225,000.00	
25,000	25,000.	Mail Weight (Initial amount boarded)
STO 4	25,000.00	
+	250,000.00	
60,000	60,000.	Freight Weight
STO 5	60,000.00	
+	310,000.00	Total Gross Weight (Prior to boarding last minute
STO 6	310,000.00	Mail)
RCL 0	350,000.00	Maximum Allowable Takeoff Gross Weight
X⇄Y	310,000.00	Total Gross Wt. (Prior to boarding last minute Mail)
-	40,000.00	Weight Available for Additional Payload/Fuel (Prior to boarding last minute Mail)

FOR LAST MINUTE CHANGES, CONTINUE:

15,000 ↑	15,000.00	Mail Weight (Boarded at the last minute)
STO + 4	15,000.00	
RCL 6	310,000.00	Total Gross Wt. (Prior to boarding last minute Mail)
+	325,000.00	Total Gross Wt. (After boarding last minute Mail)
RCL 0	350,000.00	Maximum Allowable Takeoff Gross Weight
X⇄Y	325,000.00	Total Gross Wt. (After boarding last minute Mail)
-	25,000.00	Weight Available for Additional Payload/Fuel (After boarding last minute Mail)

FOR VERIFICATION OF FINAL WEIGHTS, CONTINUE:

RCL 2	100,000.00	Fuel Wt. at the starting end of Takeoff Runway
RCL 3	75,000.00	Passengers and Baggage Weight
RCL 4	40,000.00	Mail Weight
RCL 5	60,000.00	Freight Weight

LOAD PLANNING (CONT.)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
+	03 51
STO 6	04 23 06
RCL 3	05 24 03
+	06 51
STO 6	07 23 06
RCL 4	08 24 04
+	09 51
STO 6	10 23 06
RCL 5	11 24 05
+	12 51
STO 6	13 23 06
R/S	14 74
RCL 0	15 24 00
X⇄Y	16 21
-	17 41

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
350,000	350,000.	Maximum Allowable Takeoff Gross Weight
STO 0	350,000.00	
50,000	50,000.00	Operating Weight of Aircraft
STO 1	50,000.00	
100,000	100,000.	Fuel Weight, Min. at the starting end of T.O. Runway
STO 2	100,000.00	
75,000	75,000.	Passengers and Baggage Weight
STO 3	75,000.00	
25,000	25,000.	Mail Weight
STO 4	25,000.00	
60,000	60,000.	Freight Weight
STO 5	60,000.00	
R/S	310,000.00	Total Gross Wt. (Prior to boarding last minute Mail)
R/S	40,000.00	Weight Available for Additional Payload/Fuel (Prior to boarding last minute Mail)

FOR LAST MINUTE CHANGES, CONTINUE:

15,000	15,000.	Mail Weight (Boarded at the last minute)
STO + 4	15,000.00	
R/S	325,000.00	Total Gross Weight (After boarding last minute Mail)
R/S	25,000.	Weight Available for Additional Payload/Fuel (After boarding last minute Mail)

POINT OF EQUAL TIME

SITUATION:

A. Total Distance of Flight to Destination (DIST): 2,383 NM
B. Ground Speed Out (GSO): 448 KTS
C. Ground Speed Back (GSB): 339 KTS

FIND:

A. Point of Equal Time, Distance (PET:NM): 1,026.48 NM
B. Point of Equal Time, Time (PET:H.MMSS): 2 HRS, 17 MINS, 28 SECS

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
f FIX 2	0.00	
2383 ↑	2383.00	(DIST)
339	339.	(GSB)
X	807837.00	
f LAST X	339.00	
448	448.	(GSO)
+	787.00	
÷	1026.48	(PET:NM)
448	448.	(GSO)
÷	2.29	
f →H.MS	2.17	
f FIX 4	2.1728	(PET:H.MMSS)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
f FIX 2	01 14 11 02
RCL 1	02 24 01
RCL 2	03 24 02
X	04 61
RCL 2	05 24 02
RCL 3	06 24 03
+	07 51
+	08 71
R/S	09 74
RCL 3	10 24 03
+	11 71
f →H.MS	12 14 00
f FIX 4	13 14 11 04

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
2383	2383.	(DIST)
STO 1	2383.00	
339	339.	(GSB)
STO 2	339.00	
448	448.	(GSO)
STO 3	448.00	
R/S	1026.48	(PET:NM)
R/S	2.1728	(PET:H.MMSS)

POINT OF NO RETURN

SITUATION:

A.	Ground Speed Out (GSO):	448 KTS
B.	Ground Speed Back (GSB):	339 KTS
C.	Fuel on Board (FOB):	4 HRS, 46 MINS

FIND:

A.	Point of No Return (PNR:H.MMSS):	2 HRS, 3 MINS, 12 SECS
B.	Point of No Return (PNR:NM):	919.85 NM

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
4.46	4.46	(FOB)(H.MM)
g →H	4.77	
339	339.	(GSB)
X	1615.90	
f LAST X	339.00	
448	448.	(GSO)
STO 1	448.00	
+	787.00	
÷	2.05	
f →H.MS	2.03	
f FIX 4	2.0312	(PNR:H.MMSS)
f FIX 2	2.03	
g →H	2.05	
RCL 1	448.00	
X	919.85	(PNR:NM)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
X	03 61
RCL 2	04 24 02
RCL 3	05 24 03
+	06 51
÷	07 71
f →H.MS	08 14 00
f FIX 4	09 14 11 04
R/S	10 74
g →H	11 15 00
RCL 3	12 24 03
X	13 61
f FIX 2	14 14 11 02

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
4.46	4.46	(FOB)(H.MM)
g →H	4.77	
STO 1	4.77	
339	339.	(GSB)
STO 2	339.00	
448	448.	(GSO)
STO 3	448.00	
R/S	2.0312	(PNR:H.MMSS)
R/S	919.85	(PNR:NM)

PRESSURE DIFFERENTIAL NAVIGATION: DRIFT ANGLE (DA), IN-FLIGHT READINGS OVERWATER*

SITUATION:

A.	Radar Altitude, First Reading (RA_1):	20,100'
B.	Pressure Altitude, First Reading (PA_1):	19,900'
C.	Radar Altitude, Second Reading (RA_2):	20,250'
D.	Pressure Altitude, Second Reading (PA_2):	19,950'
E.	True Air Speed (TAS):	400 KTS
F.	Coriolis Constant (CC):	21.49
G.	Latitude, First Reading (LAT_1):	30°30' N
H.	Latitude, Second Reading (LAT_2):	29°30' N
I.	Numerical Constant #1 for this page (NC_1):	2
J.	Time at the First Reading (T_1):	10 HRS, 12 MINS, 00 SECS Z
K.	Time at the Second Reading (T_2):	10 HRS, 48 MINS, 00 SECS Z

FIND:

A.	RA_1 Minus PA_1 = (D_1):	200'
B.	RA_2 Minus PA_2 = (D_2):	300'
C.	D_2 Minus D_1 = (D):	100'
D.	Latitude, Average, between readings (Ø):	30°00' N
E.	K Factor (K):	42.98
F.	Lateral Displacement, perpendicular to True Heading (ZN):	10.75 NM LEFT
G.	Actual Flight Time, between readings (AFT):	.60 HRS
H.	Crosswind Component, perpendicular to True Heading (Vn):	17.91 KTS
I.	Air Distance Flown between readings (AIR DIST):	240 NM
J.	Drift Angle, Average, between readings (DA):	2.56° LEFT

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
20,100 ↑	20,100.00	(RA_1)
19,900	19,900.	(PA_1)
-	200.00	(D_1)
20,250 ↑	20,250.00	(RA_2)
19,950	19,950.	(PA_2)
-	300.00	(D_2)
X≷Y	200.00	(D_1)
-	100.00	(D)
400	400.	(TAS)
STO 1	400.00	
÷	0.25	
21.49 ↑	21.49	(CC)
30.30	30.30	(LAT_1)(DD.MM)(North)
g →H	30.50	
29.30	29.30	(LAT_2)(DD.MM)(North)
g →H	29.50	
+	60.00	
2	2.	(NC_1)
÷	30.00	(Ø)(DD.dd)(North)
f SIN	0.50	
÷	42.98	(K)
X	10.75	(ZN)(N.M.)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)
STO 2	10.75	
10.1200	10.1200	(T_1)(HH.MMSS)(Z)
g →H	10.20	
10.4800	10.4800	(T_2)(HH.MMSS)(Z)
g →H	10.80	

(CONT.)

*Per HO 216: To be used only when geostrophic winds prevail between readings.

PRESSURE DIFFERENTIAL NAVIGATION: DRIFT ANGLE (DA), IN-FLIGHT READINGS, OW (CONT.)

MRM:(CONT.) KEY-IN	X DISPLAY	
X⇄Y	10.20	
-	0.60	(AFT)(H.hh)
STO 3	0.60	
÷	17.91	(Vn)(KTS)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)
RCL 1	400.00	
RCL 3	0.60	
X	240.00	(AIR DIST)
RCL 2	10.75	
X⇄Y	240.00	
÷	0.04	
g TAN^{-1}	2.56	(DA)(D.dd)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)

PM: KEY-IN	X DISPLAY	
PRGM←	00	
f PRGM	00	
RCL 1	01 24 01	
RCL 2	02 24 02	
-	03 41	
R/S	04 74	
RCL 3	05 24 03	
RCL 4	06 24 04	
-	07 41	
R/S	08 74	
X⇄Y	09 21	
-	10 41	
R/S	11 74	
RCL 5	12 24 05	
÷	13 71	
RCL 6	14 24 06	
RCL 7	15 24 07	
+	16 51	
2	17 02	(NC_1)
÷	18 71	
R/S	19 74	
f SIN	20 14 04	
RCL 0	21 24 00	
X⇄Y	22 21	
÷	23 71	
R/S	24 74	
X	25 61	
R/S	26 74	
÷	27 71	
R/S	28 74	
RCL 5	29 24 05	
RCL 1	30 24 01	
X	31 61	
R/S	32 74	
RCL 6	33 24 06	
X⇄Y	34 21	
+	35 71	
g TAN^{-1}	36 15 06	

PRESSURE DIFFERENTIAL NAVIGATION: DRIFT ANGLE (DA), IN-FLIGHT READINGS, OW (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	20,100	20,100.	(RA_1)
	STO 1	20,100.00	
	19,900	19,900.	(PA_1)
	STO 2	19,900.00	
	20,250	20,250.	(RA_2)
	STO 3	20,250.00	
	19,950	19,950.	(PA_2)
	STO 4	19,950.00	
	400	400.	(TAS)
	STO 5	400.00	
	30.30	30.30	(LAT_1)(DD.MM)
	g →H	30.50	
	STO 6	30.50	
	29.30	29.30	(LAT_2)(DD.MM)
	g →H	29.50	
	STO 7	29.50	
	21.49	21.49	(CC)
	STO 0	21.49	
	R/S	200.00	(D_1)
	R/S	300.00	(D_2)
	R/S	100.00	(D)
	R/S	30.00	(Ø)(DD.dd)(North)
	R/S	42.98	(K)
	R/S	10.75	(ZN)(N.M.)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)
	STO 6	10.75	
	10.1200	10.1200	(T_1)(HH.MMSS)(Z)
	g →H	10.20	
	10.4800	10.4800	(T_2)(HH.MMSS)(Z)
	g →H	10.80	
	X⇄Y	10.20	
	-	0.60	(AFT)(H.hh)
	STO 1	0.60	
	R/S	17.91	(Vn)(KTS)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)
	R/S	240.00	(AIR DIST)(N.M.)
	R/S	2.56	(DA)(D.dd)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)

PRESSURE DIFFERENTIAL NAVIGATION: LATERAL DISPLACEMENT (ZN), IN-FLIGHT READINGS, OW

SITUATION:	A.	Radar Altitude, First Reading (RA_1):	20,100'
	B.	Pressure Altitude, First Reading (PA_1):	19,900'
	C.	Radar Altitude, Second Reading (RA_2):	20,250'
	D.	Pressure Altitude, Second Reading (PA_2):	19,950'
	E.	True Air Speed (TAS):	400 KTS
	F.	Coriolis Constant (CC):	21.49
	G.	Latitude, First Reading (LAT_1):	30°30' N
	H.	Latitude, Second Reading (LAT_2):	29°30' N
	I.	Numerical Constant #1 for this page (NC_1)	2
FIND:	A.	RA_1 Minus PA_1 = (D_1):	200'
	B.	RA_2 Minus PA_2 = (D_2):	300'
	C.	D_2 Minus D_1 = (D):	100'
	D.	Latitude, Average, between readings (Ø):	30°00' N
	E.	K Factor (K):	42.98
	F.	Lateral Displacement (ZN): (Perpendicular to True Heading)	10.75 NM LEFT

MRM:

KEY-IN	DISPLAY	
RUN→	0.00	
20,100 ↑	20,100.00	(RA_1)
19,900	19,900.	(PA_1)
-	200.00	(D_1)
20,250 ↑	20,250.00	(RA_2)
19,950	19,950.	(PA_2)
-	300.00	(D_2)
X≷Y	200.00	
-	100.00	(D)
400	400.00	(TAS)
+	0.25	
21.49 ↑	21.49	(CC)
30.30	30.30	(LAT_1)(DD.MM)(North)
g →H	30.50	
29.30	29.30	(LAT_2)(DD.MM)(North)
g →H	29.50	
+	60.00	
2	2.	(NC_1)
÷	30.00	(Ø)(DD.dd)(North)
f SIN	0.50	
÷	42.98	(K)
X	10.75	(ZN)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)

PM:

KEY-IN	DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
-	03 41
R/S	04 74
RCL 3	05 24 03
RCL 4	06 24 04
-	07 41
R/S	08 74
X≷Y	09 21
-	10 41

(CONT.)

PRESSURE DIFFERENTIAL NAVIGATION: LATERAL DISPLACEMENT (ZN), IN-FLIGHT READINGS, OW (CONT.)

PM:(CONT.)	KEY-IN	DISPLAY	
	R/S	11 74	
	RCL 5	12 24 05	
	÷	13 71	
	RCL 6	14 24 06	
	RCL 7	15 24 07	
	+	16 51	
	2	17 02	(NC_1)
	÷	18 71	
	R/S	19 74	
	f SIN	20 14 04	
	RCL 0	21 24 00	
	X≷Y	22 21	
	+	23 71	
	R/S	24 74	
	X	25 61	

ARM:	KEY-IN	DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	20,100	20,100.	(RA_1)
	STO 1	20,100.00	
	19,900	19,900.	(PA_1)
	STO 2	19,900.00	
	20,250	20,250.	(RA_2)
	STO 3	20,250.00	
	19,950	19,950.	(PA_2)
	STO 4	19,950.00	
	400	400.	(TAS)
	STO 5	400.00	
	30.30	30.30	(LAT_1)
	g →H	30.50	
	STO 6	30.50	
	29.30	29.30	(LAT_2)
	g →H	29.50	
	STO 7	29.50	
	21.49	21.49	(CC)
	STO 0	21.49	
	R/S	200.00	(D_1)
	R/S	300.00	(D_2)
	R/S	100.00	(D)
	R/S	30.00	(Ø)(DD.dd)(North)
	R/S	42.98	(K)
	R/S	10.75	(ZN)(Positive = Left Drift, N. Hemisphere) (Negative = Right Drift, N. Hemisphere) (Drift is reversed in S. Hemisphere)

RHUMBLINE, COORDINATES OF NEXT WAYPOINT

SITUATION:

A.	True Course (TC):	237°
B.	Ground Speed (GS):	500 Kts
C.	Flight Time (FT):	2 Hrs, 00 Mins, 00 Secs
D.	Latitude, Starting (LAT:START):	30.00° N
E.	Longitude, Starting (λ:START):	140.00° W
F.	Numerical Constant #1 for this page (NC_1):	2
G.	Numerical Constant #2 for this page (NC_2):	45
H.	Numerical Constant #3 for this page (NC_3):	60
I.	Numerical Constant #4 for this page (NC_4):	180

FIND:

A.	Latitude, Next Waypoint (LAT:NWYP):	20.92° N
B.	Longitude, Next Waypoint (λ:NWYP):	155.51° W

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
237	237.	(TC)
STO 0	237.00	
f COS	-0.54	
500	500.	(GS)
X	-272.32	
2.0000	2.0000	(FT)(H.MMSS)
g →H	2.00	
X	-544.64	
60	60.	(NC_3)
÷	-9.08	
30.00	30.00	(LAT:START)(DD.dd)(If South: Key-In CHS)
STO 1	30.00	
+	20.92	(LAT:NWYP)(DD.dd)(Negative = South)
2	2.	(NC_1)
÷	10.46	
45	45.	(NC_2)
+	55.46	
f TAN	1.45	
STO 2	1.45	
f ln	0.37	
STO 3	0.37	
RCL 1	30.00	
2	2.	(NC_1)
÷	15.00	
45	45.	(NC_2)
+	60.00	
f TAN	1.73	
f ln	0.55	
-	-0.18	
STO 4	-0.18	
RCL 0	237.00	
f TAN	1.54	
X	-0.27	
STO 5	-0.27	
180	180.	(NC_4)
g π	3.14	
÷	57.30	
X	-15.51	
STO 6	-15.51	
140.00	140.00	(λ:START)(DDD.dd)(If East: Key-In CHS)
STO 0	140.00	
X⇄Y	-15.51	
-	155.51	(λ:NWYP)(DDD.dd)(Negative = East)

RHUMBLINE, COORDINATES OF NEXT WAYPOINT (CONT.)

PM:	KEY-IN	X DISPLAY	
	PRGM-	00	
	f PRGM	00	
	RCL 1	01 24 01	
	f COS	02 14 05	
	RCL 2	03 24 02	
	X	04 61	
	RCL 3	05 24 03	
	X	06 61	
	RCL 4	07 24 04	
	÷	08 71	
	RCL 5	09 24 05	
	+	10 51	
	R/S	11 74	
	2	12 02	(NC_1)
	÷	13 71	
	RCL 6	14 24 06	
	+	15 51	
	f TAN	16 14 06	
	f ln	17 14 07	
	RCL 5	18 24 05	
	2	19 02	(NC_1)
	÷	20 71	
	RCL 6	21 24 06	
	+	22 51	
	f TAN	23 14 06	
	f ln	24 14 07	
	-	25 41	
	RCL 1	26 24 01	
	f TAN	27 14 06	
	X	28 61	
	RCL 7	29 24 07	
	g π	30 15 73	
	÷	31 71	
	X	32 61	
	RCL 0	33 24 00	
	X⇄Y	34 21	
	-	35 41	

RHUMBLINE, COORDINATES OF NEXT WAYPOINT (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	140.00	140.00	(λ:START)(DDD.dd)(If East: Key-In CHS)
	STO 0	140.00	
	237	237.00	(TC)
	STO 1	237.00	
	500	500.	(GS)
	STO 2	500.00	
	2.0000	2.0000	(FT)(H.MMSS)
	g →H	2.00	
	STO 3	2.00	
	60	60.	(NC_3)
	STO 4	60.00	
	30.00	30.00	(LAT:START)(DD.dd)(If South: Key-In CHS)
	STO 5	30.00	
	45	45.	(NC_2)
	STO 6	45.00	
	180	180.	(NC_4)
	STO 7	180.00	
	R/S	20.92	(LAT:NWYP)(DD.dd)(Negative = South)
	R/S	155.51	(λ:NWYP)(DDD.dd)(Negative = East)

Note 1: The use of this Aero-Function is limited to flights whose Starting Points, and Next Waypoints, are both located within a single quarter of the world, which are described as follows:

1st Quarter: North Latitudes; 0° through West Longitudes
2nd Quarter: North Latitudes; 0° through East Longitudes
3rd Quarter: South Latitudes; 0° through West Longitudes
4th Quarter: South Latitudes; 0° through East Longitudes

Note 2: Common practice suggests not to use a Rhumbline Course within Arctic/Antartic Latitudes.

TAIL WIND FACTOR

SITUATION:

A. Distance flown between two fixes (or waypoints): 200 N.M.
B. Actual Flight Time: 30 Minutes
C. True Air Speed: 300 Kts.

FIND:

A. Tail Wind Factor: 100 Kts.

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
200 ↑	200.00	Distance flown between two fixes (or Waypoints)
.30	0.30	Actual Flight Time (H.MM)
g →H	0.50	Actual Flight Time (H.hh)
÷	400.00	Ground Speed
300	300.	True Air Speed
-	100.00	Tail Wind Factor (If negative = Head Wind Factor)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
g →H	03 15 00
÷	04 71
RCL 3	05 24 03
-	06 41

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
200 STO 1	200.00	Distance flown between two fixes (or Waypoints)
.30 STO 2	0.30	Actual Flight Time (H.MM)
300 STO 3	300.00	True Air Speed
R/S	100.00	Tail Wind Factor (If negative = Head Wind Factor)

TEMPERATURE ALOFT: CRUISE ALTITUDE WITHIN A CLOUD DECK

SITUATION:	A.	Altitude at Start of Climb (ALT:SOC):	20' ASL*
	B.	Altitude at Base of Cloud Deck (ALT:BOCD):	20,000' ASL*
	C.	Altitude at Cruise (ALT:CA):	23,000' ASL*
	D.	Temperature at Start of Climb (OAT:SOC):	14° C
	E.	Lapse Rate, Dry, Static (LRDS):	1.94° C
	F.	Lapse Rate, Wet, Static (LRWS):	1.50° C
FIND:	A.	Temperature Aloft, at Cruise Altitude (OAT:CA):	- 29.26° C

* Altitudes are keyed-in as thousands of feet above sea level.

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
14 ↑	14.00	(OAT:SOC)
20	20.	(ALT:BOCD)*
STO 1	20.00	
.02	0.02	(ALT:SOC)*
-	19.98	
1.94	1.94	(LRDS)
X	38.76	
-	-24.76	
23	23.	(ALT:CA)*
RCL 1	20.00	
-	3.00	
1.50	1.50	(LRWS)
X	4.50	
-	-29.26	(OAT:CA)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 4	01 24 04
RCL 2	02 24 02
RCL 1	03 24 01
-	04 41
RCL 5	05 24 05
X	06 61
-	07 41
RCL 3	08 24 03
RCL 2	09 24 02
-	10 41
RCL 6	11 24 06
X	12 61
-	13 41

TEMPERATURE ALOFT: CRUISE ALTITUDE WITHIN A CLOUD DECK (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN-	0.00	
	GTO 00	0.00	
	.02	0.02	(ALT:SOC)*
	STO 1	0.02	
	20	20.	(ALT:BOCD)*
	STO 2	20.00	
	23	23.	(ALT:CA)*
	STO 3	23.00	
	14	14.	(OAT:SOC)
	STO 4	14.00	
	1.94	1.94	(LRDS)
	STO 5	1.94	
	1.50	1.50	(LRWS)
	STO 6	1.50	
	R/S	-29.26	(OAT:CA)

CAUTION:

Since this Aero-Function is predicated upon "Standard Atmospheric Conditions" which rarely exist, the results should be considered as approximations only, and monitored closely during the actual climb.

TIME CONVERSION, MK-I

SITUATION:	A. Hours, Whole:	11 Hours
	B. Minutes, Whole:	35 Minutes
	C. Seconds, Whole:	48 Seconds
	D. i.e.:	11:35:48
FIND:	A. Hours, Whole:	11 Hours
	B. Hours, Fraction:	.60 Hours
	C. i.e.:	11.60 Hours

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
11.3548	11.3548	(HH.MMSS)
g →H	11.60	(HH.hh)

PM:

KEY-IN	X DISPLAY
PRGM←	00
f PRGM	00
g →H	01 15 00

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
11.3548	11.3548	(HH.MMSS)
R/S	11.60	(HH.hh)

TIME CONVERSION, MK-II

SITUATION:	A. Hours, Whole:	11 Hours
	B. Minutes, Whole:	35 Minutes
	C. Seconds, Whole:	48 Seconds
	D. i.e.:	11:35:48
	E. Numerical Constant #1 for this page (NC_1):	.006
	F. Numerical Constant #2 for this page (NC_2):	.6
	G. Numerical Constant #3 for this page (NC_3):	100
FIND:	A. Hours, Whole:	11 Hours
	B. Minutes, Whole:	35 Minutes
	C. Minutes, Fraction:	.80 Minutes
	D. i.e.:	11:35.80

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
11.3548	11.3548	(HH.MMSS)
↑	11.35	
100	100.	(NC_3)
X	1,135.48	
STO 0	1,135.48	
g FRAC	0.48	
.6	0.6	(NC_2)
÷	0.80	
STO 1	0.80	
RCL 0	1,135.48	
f INT	1,135.00	
RCL 1	0.80	
+	1,135.80	
100	100.	(NC_3)
÷	11.36	
f FIX 4	11.3580	(HH.MMmm)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 2	01 24 02
RCL 3	02 24 03
÷	03 71
RCL 4	04 24 04
÷	05 71
RCL 1	06 24 01
+	07 51
f FIX 4	08 14 11 04

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
11.35	11.35	(HH.MM)
STO 1	11.35	
.0048	0.0048	(SS)
STO 2	4.8000000 -03	
.006	0.006	(NC_1)
STO 3	0.01	
100	100.	(NC_3)
STO 4	100.00	
R/S	11.3580	(HH.MMmm)

TIME CONVERSION, MK-III

SITUATION:	A. Hours, Whole:	11 Hours
	B. Hours, Fraction:	.41 Hours
	C. i.e.:	11.41 Hours
FIND:	A. Hours, Whole:	11 Hours
	B. Minutes, Whole:	24 Minutes
	C. Seconds, Whole:	36 Seconds
	D. i.e.:	11:24:36

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
11.41	11.41	(HH.hh)
f →H.MS	11.24	(HH.MM)
f FIX 4	11.2436	(HH.MMSS)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
f →H.MS	01 14 00
f FIX 4	02 14 11 04

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
11.41	11.41	(HH.hh)
R/S	11.2436	(HH.MMSS)

TIME CONVERSION, MK-IV

SITUATION:

A.	Hours, Whole:	11 Hours
B.	Hours, Fraction:	.41 Hours
C.	i.e.:	11.41 Hours
D.	Numerical Constant #1 for this page (NC_1):	100

FIND:

A.	Hours, Whole:	11 Hours
B.	Minutes, Whole:	24 Minutes
C.	i.e.:	11:24 Seconds are truncated internally

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
11.41	11.41	(HH.hh)
f →H.MS	11.24	
100	100.	(NC_1)
X	1,124.36	
f INT	1,124.00	
100	100.	(NC_1)
÷	11.24	(HH.MM)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
f →H.MS	02 14 00
RCL 2	03 24 02
X	04 61
f INT	05 14 01
RCL 2	06 24 02
÷	07 71

ARM:

KEY-IN	X DISPLAY		
RUN→	0.00		
GTO 00	0.00		
11.41	11.41	(HH.hh)	
STO 1	11.41		
100	100.	(NC_1)	
STO 2	100.00		
R/S	11.24	(HH.MM)	Seconds are truncated internally

TIME CONVERSION, MK-V

SITUATION:

A.	Hours, Whole:	11 Hours
B.	Hours, Fraction:	.51 Hours
C.	i.e.:	11.51 Hours
D.	Numerical Constant #1 for this page (NC_1):	1
E.	Numerical Constant #2 for this page (NC_2):	100
F.	Numerical Constant #3 for this page (NC_3):	120

FIND:

A.	Hours, Whole:	11 Hours
B.	Minutes, Whole:	31 Minutes
C.	i.e.:	11:31

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
11.51 ↑	11.51	(HH.hh)
1 ↑	1.00	(NC_1)
120	120.	(NC_3)
÷	0.01	
+	11.52	
f →H.MS	11.31	
100	100.	(NC_2)
X	1,131.06	
f INT	1,131.00	
100	100.	(NC_2)
÷	11.31	(HH.MM)

If this Aero-Function's conversion process produces 30 or more seconds, the minute value will be rounded up, and the seconds then removed internally. If less than 30 seconds are produced, the minute value is unchanged and the seconds are also removed internally.

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 2	01 24 02
RCL 3	02 24 03
÷	03 71
RCL 1	04 24 01
+	05 51
f →H.MS	06 14 00
RCL 4	07 24 04
X	08 61
f INT	09 14 01
RCL 4	10 24 04
÷	11 71

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
11.51	11.51	(HH.hh)
STO 1	11.51	
1	1.	(NC_1)
STO 2	1.00	
120	120.	(NC_3)
STO 3	120.00	
100	100.	(NC_2)
STO 4	100.00	
R/S	11.31	(HH.MM)

TIME CONVERSION, MK-VI

SITUATION:

A.	Hours, Whole:	11 Hours
B.	Minutes, Whole:	36 Minutes
C.	Minutes, Fraction:	.75 Minute
D.	i.e.:	11:36.75
E.	Numerical Constant #1 for this page (NC_1):	60
F.	Numerical Constant #2 for this page (NC_2):	100
G.	Numerical Constant #3 for this page (NC_3):	10,000

FIND:

A.	Hours, Whole:	11 Hours
B.	Minutes, Whole:	36 Minutes
C.	Seconds, Whole:	45 Seconds
D.	i.e.:	11:36:45

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
11.3675	11.3675	(HH.MMmm)
STO 0	11.37	
100	100.	(NC_2)
X	1,136.75	
g FRAC	0.75	
STO 1	0.75	
60	60.	(NC_1)
X	45.00	
10,000	10,000.	(NC_3)
÷	4.5000000 -03	
RCL 0	11.37	
f FIX 4	11.3675	
RCL 1	0.7500	
100	100.	(NC_2)
÷	0.0075	
-	11.3600	
+	11.3645	(HH.MMSS)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
X	03 61
g FRAC	04 15 01
STO 0	05 23 00
RCL 3	06 24 03
X	07 61
RCL 4	08 24 04
÷	09 71
STO 5	10 23 05
RCL 0	11 24 00
RCL 2	12 24 02
÷	13 71
RCL 1	14 24 01
X≷Y	15 21
-	16 41
RCL 5	17 24 05
+	18 51
f FIX 4	19 14 11 04

TIME CONVERSION, MK-VI (CONT.)

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	11.3675	11.3675	(HH.MMmm)
	STO 1	11.37	
	100	100.	(NC_2)
	STO 2	100.00	
	60	60.	(NC_1)
	STO 3	60.00	
	10,000	10,000.	(NC_3)
	STO 4	10,000.00	
	R/S	11.3645	(HH.MMSS)

TIME CONVERSION, MK-VII

SITUATION:	A.	Hours, Whole:	11 Hours
	B.	Minutes, Whole:	36 Minutes
	C.	Minutes, Fraction:	.75 Minute
	D.	i.e.:	11:36.75
	E.	Numerical Constant #1 for this page (NC_1):	.6
FIND:	A.	Hours, Whole:	11 Hours
	B.	Hours, Fraction:	.61 Hour
	C.	i.e.:	11.61 Hours

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
11.3675	11.3675	(HH.MMmm)
STO 0	11.37	
g FRAC	0.37	
.6	0.6	(NC_1)
÷	0.61	
RCL 0	11.37	
f INT	11.00	
+	11.61	(HH.hh)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
g FRAC	02 15 01
RCL 2	03 24 02
÷	04 71
STO 0	05 23 00
RCL 1	06 24 01
f INT	07 14 01
+	08 51

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
11.3675	11.3675	(HH.MMmm)
STO 1	11.37	
.6	0.6	(NC_1)
STO 2	0.60	
R/S	11.61	(HH.hh)

TRUE COURSE

SITUATION:

A.	Compass Heading (CH):	004°
B.	Drift Angle (DA):	9° RIGHT
C.	Deviation (DEV):	20° WEST
D.	Variation (VAR):	14° EAST
E.	Numerical Constant for this page (NC_1):	360°

FIND:

A. True Course (TC): 007°

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
4 ↑	4.00	(CH)
9	9.	(DA)(If Right Drift, Key-In: CHS)
CHS	-9.	
-	13.00	
20	20.	(DEV)(If East, Key-In: CHS)
-	-7.00	
14	14.	(VAR)(If East, Key-In: CHS)
CHS	-14.	
-	7.00	(TC)(If Negative, Key-In: 360 and +) (If over 360, Key-In: 360 and -) (If neither of the above is true, Display now shows (TC))

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 1	01 24 01
RCL 2	02 24 02
-	03 41
RCL 3	04 24 03
-	05 41
RCL 4	06 24 04
-	07 41
STO 6	08 23 06
g X<0	09 15 41
GTO 19	10 13 19
RCL 6	11 24 06
RCL 5	12 24 05
-	13 41
g X<0	14 15 41
GTO 17	15 13 17
R/S	16 74
RCL 6	17 24 06
R/S	18 74
RCL 6	19 24 06
RCL 5	20 24 05
+	21 51

ARM:	KEY-IN	X DISPLAY	
	RUN→	0.00	
	GTO 00	0.00	
	4	4.	(CH)
	STO 1	4.00	
	9	9.	(DA)(If Right Drift, Key-In: CHS)
	CHS	-9.	
	STO 2	-9.00	
	20	20.	(DEV)(If East, Key-In: CHS)
	STO 3	20.00	
	14	14.	(VAR)(If East, Key-In: CHS)
	CHS	-14.	
	STO 4	-14.00	
	360	360.	(NC_1)
	STO 5	360.00	
	R/S	7.00	(TC)

66. VOR DISTANCE FROM AIRCRAFT, USING TWO VOR STATIONS

SITUATION:

A. Radial from First VOR (RFFV): 170°
B. Radial from Second VOR (RFSV): 240°
C. Radial from First VOR to Second VOR (RFFVTSV): 125°
D. Distance Between VORs (DBV): 27 NM

FIND:

A. Distance From Aircraft to First VOR (DFAFV): 26.04 NM

MRM:

KEY-IN	X DISPLAY	
RUN→	0.00	
27 ↑	27.00	(DBV)
240	240.	(RFSV)
STO 1	240.00	
125	125.	(RFFVTSV)
-	115.00	
f SIN	0.91	
X	24.47	
RCL 1	240.00	(RFSV)
170	170.	(RFFV)
-	70.00	
f SIN	0.94	
÷	26.04	(DFAFV)

PM:

KEY-IN	X DISPLAY
PRGM→	00
f PRGM	00
RCL 4	01 24 04
RCL 2	02 24 02
RCL 3	03 24 03
-	04 41
f SIN	05 14 04
X	06 61
RCL 2	07 24 02
RCL 1	08 24 01
-	09 41
f SIN	10 14 04
÷	11 71

ARM:

KEY-IN	X DISPLAY	
RUN→	0.00	
GTO 00	0.00	
170	170.	(RFFV)
STO 1	170.00	
240	240.	(RFSV)
STO 2	240.00	
125	125.	(RFFVTSV)
STO 3	125.00	
27	27.	(DBV)
STO 4	27.00	
R/S	26.04	(DFAFV)