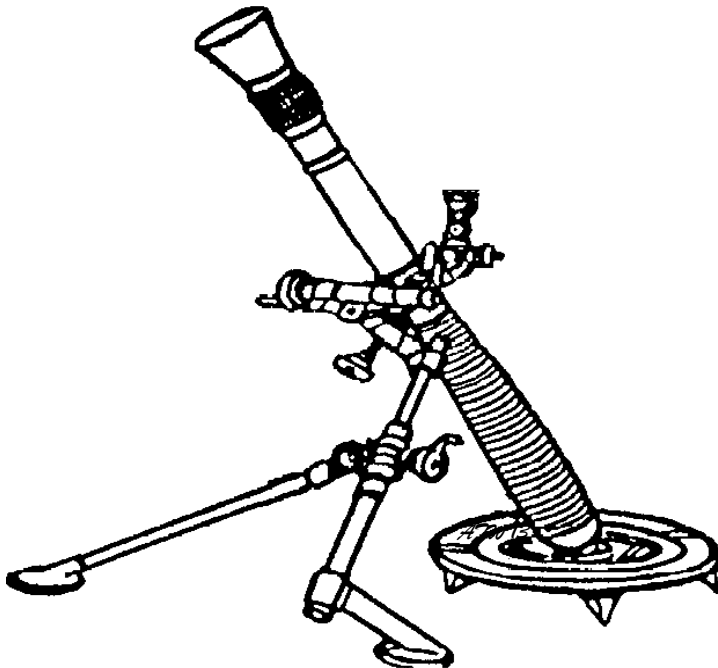


TEAM DRILL #5

81mm M16 PLOTTING BOARD ADVANCED PROCEDURES



**UNITED STATES ARMY INFANTRY SCHOOL
INFANTRY MORTAR LEADER COURSE
MTR CO 1ST BATTALION 19TH INFANTRY REGIMENT
FT. BENNING, GEORGIA 31905
AUGUST 2021**

TEAM DRILL #5

ADVANCED MISSIONS 81mm

M16 PLOTTING BOARD

PURPOSE: This team drill is intended to give the student a working knowledge of the techniques used in computing advanced missions for the 81mm mortar. When you have successfully completed this drill, you will have the basic working knowledge required of an FDC computer to compute advanced missions.

REFERENCES:

TC 3-22.91

ATP 3-09.30

FT. BENNING MAP

[illegible]

Situation A: The platoon leader decides to split the section. #1 and #2 guns are instructed to move to another location. Plot their position using the data sheet below and prepare for action.

[illegible]

[illegible]

Situation Continued: Your platoon has reformed and you are ordered to occupy a new position. The platoon leader instructs you to construct a modified observed chart and prepare for action.

[illegible]

Situation C: Shortly after arriving at your new location, you receive two fire missions and the platoon leader instructs you to engage both targets simultaneously. Compute the missions and update your data sheet.

[illegible]

For use of this form, see TC 3-22.91; the proponent agency is TRADOC

DA FORM 2399, MAY 2017

TARGET DESTROYED

AIM POINT GRID:

~~PREVIOUS EDITIONS ARE OBSOLETE.~~

APD LC v1.00

[illegible]

Situation D: Some time later, you are instructed to conduct a FPF mission. The FO sends the following call for fire. Compute the mission and update your data sheet.

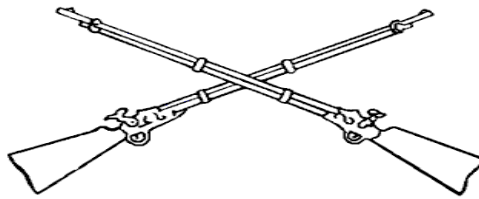
[illegible]

Situation E: A short time later, you receive the following call for fire. Compute the mission and update your data sheet.

[illegible]

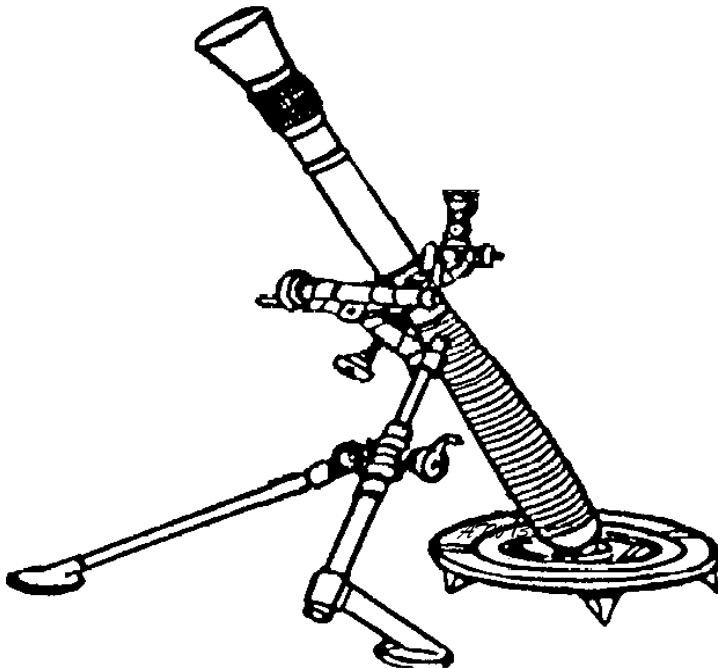
Situation F: Compute the following Quick smoke mission.

[illegible]



TEAM DRILL #5 SOLUTIONS

81mm M16 PLOTTING BOARD ADVANCED PROCEDURES



**UNITED STATES ARMY INFANTRY SCHOOL
INFANTRY MORTAR LEADER COURSE
MTR CO 1ST BATTALION 19TH INFANTRY REGIMENT
FT. BENNING, GEORGIA 31905
AUGUST 2021**

G.I.: 04 / 64

DATA SHEET

For use of this form, see TC 23-91. The proponent agency is TRADOC.

SETUP			WEAPON DATA				FO DATA										
TIME OUT:			UNIT:	WPN :	WPN :	EO	ALT	GRID									
TGT PREFIX: CA									DIR :	DIR :							
TGT NO: 0703-0800			81 MM CAR ☐ YES M252 ☒ NO	DIS :	DIS :												
ALARM ☐ ON ☐ OFF																	
MIN E:			BP: #3	WPN :	WPN :												
MIN N:									DIR :	DIR :							
GD: ☐ E ☐ W			E: 0200	DIS :	DIS :												
LAT: ☐ + ☐ -									N: 6500								
LISTEN: ☐ ON ☐ OFF			ALT: 400	WPN :	WPN :												
BIT RATE			AZ: 2700						DIR :	DIR :							
KEY TONE			DEF: 0700	DIS :	DIS :												
BLK ☐ SNG ☐ DBL			ELE:														
OWNER ID:																	
AMMUNITION DATA																	
TEMPERATURE:			TYPE: ☒ HE ☐ WP ☒ ILL ☐ CS ☐ TNG ☒ RP														
LOT#		M821		M819RP		M301A3											
WHEIGHT/ TYPE																	
ON HAND																	
RECEIVED																	
TOTAL																	
ROUNDS EXPENDED																	
ROUNDS REMAINING																	
TARGET DATA																	
TARGET ID			CHART DATA		FIRING CORRECTIONS			FIRING DATA			INTELLIGENCE			ROUND			
TGT #	GRID	ALT	DEF	RNG /CHG	DEFL CORR	RNG CORR	ALT VI	ALT CORR	DEFL	RNG /CHG	F.S.	ELE	TIME FIRED	TARGET DESCRIPTION	METHOD OF ENGAGEMENT	SURV	EXP
RP1			0721	3400			460										
				2			+60	+30	0721	3425		1164					
CA 0703	041 622		0850	3550			400	0	0850	3	35.6	1027		BRDM I/OPEN	3 & 4 3RDS RP	2 BRDM BURN	6 RP

G.I.: 04 / 64

DATA SHEET

For use of this form, see TC 23-91. The proponent agency is TRADOC.

SETUP			WEAPON DATA				FO DATA										
TIME OUT:			UNIT:	WPN :	WPN :	EO	ALT	GRID									
TGT PREFIX: CA									DIR :	DIR :							
TGT NO: 0703-0800			81 MM CAR ☐ YES M252 ☒ NO	DIS :	DIS :												
ALARM ☐ ON ☐ OFF																	
MIN E:			BP: #2	WPN :	WPN :												
MIN N:						DIR :	DIR :										
GD: ☐ E ☐ W			E: 0255	DIS :	DIS :												
LAT: ☐ + ☐ -						N: 6490											
LISTEN: ☐ ON ☐ OFF			ALT: 400	WPN :	WPN :												
BIT RATE			AZ: 2820 / 2800			DIR :	DIR :										
KEY TONE			DEF: 2400	DIS :	DIS :												
BLK ☐ SNG ☐ DBL			ELE:														
OWNER ID:																	
AMMUNITION DATA																	
TEMPERATURE:			TYPE: ☒ HE ☐ WP ☒ ILL ☐ CS ☐ TNG ☒ RP														
LOT#		M821		M819RP		M301A3											
WEIGHT/ TYPE																	
ON HAND																	
RECEIVED																	
TOTAL																	
ROUNDS EXPENDED																	
ROUNDS REMAINING																	
TARGET DATA																	
TARGET ID			CHART DATA		FIRING CORRECTIONS			FIRING DATA			INTELLIGENCE			ROUND			
TGT #	GRID	ALT	DEF	RNG /CHG	DEFL CORR	RNG CORR	ALT VI	ALT CORR	DEFL	RNG /CHG	F.S.	ELE	TIME FIRED	TARGET DESCRIPTION	METHOD OF ENGAGEMENT	SURV	EXP
RP1			2380	3075			460 +60	+30	2380	3100 2		1004					
CA 0703	041 622		2527	3150			400 0	0	2527	3	37.9	1128		BRDM I/OPEN	1 & 2 3RDS RP	2 BRDM BURN	HE 1 RP 6

For use of this form, see TC 3-22.91; the proponent agency is TRADOC

BATTLE DAMAGE ASSESSMENT (BDA): 2 BRDM's BURNING AIM POINT GRID:

DA FORM 2399, MAY 2017 PREVIOUS EDITIONS ARE OBSOLETE. APD LC v1.00

DATA SHEET																			
G.I.: 04 / 64					For use of this form, see TC 23-91. The proponent agency is TRADOC.														
SETUP					WEAPON DATA										FO DATA				
TIME OUT:					UNIT:		WPN : DIR : DIS :		WPN : DIR : DIS :		EO		ALT		GRID				
TGT PREFIX: CA																			
TGT NO: 0703-0800					81 MM CAR ☐ YES														
ALARM ☐ ON ☐ OFF					M252 ☒ NO														
MIN E:					BP: #2		WPN : DIR : DIS :		WPN : DIR : DIS :										
MIN N:																			
GD: ☐ E ☐ W					E: 0230														
LAT: ☐ + ☐ -					N: 6460														
LISTEN: ☐ ON ☐ OFF					ALT: 400		WPN : DIR : DIS :		WPN : DIR : DIS :										
BIT RATE					AZ: 2700														
KEY TONE					DEF: 2800														
BLK ☐ SNG ☐ DBL					ELE:														
OWNER ID:																			
AMMUNITION DATA																			
TEMPERATURE:					TYPE: ☒ HE ☐ WP ☒ ILL ☐ CS ☐ TNG ☒ RP														
LOT#		M821		M819RP		M301A3													
WHEIGHT/ TYPE																			
ON HAND																			
RECEIVED																			
TOTAL																			
ROUNDS EXPENDED																			
ROUNDS REMAINING																			
TARGET DATA																			
TARGET ID			CHART DATA		FIRING CORRECTIONS				FIRING DATA				INTELLIGENCE				ROUND		
TGT #	GRID	ALT	DEF	RNG /CHG	DEFL CORR	RNG CORR	ALT VI	ALT CORR	DEFL	RNG /CHG	F.S.	ELE	TIME FIRED	TARGET DESCRIPTION	METHOD OF ENGAGEMENT	SURV	EXP		
CA 0704	024 631	480	2419	1600			480 +80	+40	2419	1650 1		1120		P.I.O.	#1/2 3 RDS PROX	25% CAS	8		
CA 0705	030 632	440	2737	1725			440 +40	0	2737	1		1087		OP W/COVER	#3/4 3 RDS HE	TGT DSTR	8		
	035 625		2829	2425					2829	2	30.3	1081		EN POSN W/CVR	SEC 2 RP	AREA SCRIN	8		
CA 0706	026 622	450	2494	2550			450 +50	+25	2494	2575 2	29.2	1024		BREACH SITE	SEC 3 RP	AREA SCRIN	HE 3 RP 53		

For use of this form, see TC 3-22.91; the proponent agency is TRADOC

BATTLE DAMAGE ASSESSMENT (BDA): EST. 25% CASUALTIES AIM POINT GRID:

DA FORM 2399, MAY 2017 PREVIOUS EDITIONS ARE OBSOLETE. APD LC v1.00

For use of this form, see TC 3-22.91; the proponent agency is TRADOC

APD LC v1.00

FPF DATA SHEET

DATA SHEET																	
G.I.: 04 / 64						For use of this form, see TC 23-91. The proponent agency is TRADOC.											
SETUP			WEAPON DATA										FO DATA				
TIME OUT:			UNIT:		WPN : DIR : DIS :		WPN : DIR : DIS :		EO		ALT		GRID				
TGT PREFIX: CA																	
TGT NO: 0703-0800			81 MM CAR ☐ YES														
ALARM ☐ ON ☐ OFF			M252 ☒ NO														
MIN E:			BP: #2		WPN : DIR : DIS :		WPN : DIR : DIS :										
MIN N:																	
GD: ☐ E ☐ W			E: 0230		WPN : DIR : DIS :		WPN : DIR : DIS :										
LAT: ☐ + ☐ -			N: 6460														
LISTEN: ☐ ON ☐ OFF			ALT: 400		WPN : DIR : DIS :		WPN : DIR : DIS :										
BIT RATE			AZ: 2700														
KEY TONE			DEF: 2800		WPN : DIR : DIS :		WPN : DIR : DIS :										
BLK ☐ SNG ☐ DBL			ELE:														
OWNER ID:																	
AMMUNITION DATA																	
TEMPERATURE: TYPE: ☒ HE ☐ WP ☒ ILL ☐ CS ☐ TNG ☒ RP																	
LOT#		M821		M819RP		M301A3											
WHEIGHT/ TYPE																	
ON HAND																	
RECEIVED																	
TOTAL																	
ROUNDS EXPENDED																	
ROUNDS REMAINING																	
TARGET DATA																	
TARGET ID			CHART DATA		FIRING CORRECTIONS				FIRING DATA				INTELLIGENCE				ROUND
TGT #	GRID	ALT	DEF	RNG /CHG	DEFL CORR	RNG CORR	ALT VI	ALT CORR	DEFL	RNG /CHG	F.S.	ELE	TIME FIRED	TARGET DESCRIPTION	METHOD OF ENGAGEMENT	SURV	EXP
FPF	#1	400	2739	825			400	0	2739	825		1386					
	#2		2739	825					2739	825		1386					
	#3		2759	800					2759	800		1392					
	#4		2758	775					2758	775		1399		FPF	1 RD HED S/L	FPF ADJ	10 HE

For use of this form, see TC 3-22.91; the proponent agency is TRADOC

BATTLE DAMAGE ASSESSMENT (BDA): **FPF ADJUSTED** AIM POINT GRID:

DA FORM 2399, MAY 2017 PREVIOUS EDITIONS ARE OBSOLETE. APD LC v1.00

For use of this form, see TC 3-22.91; the proponent agency is TRADOC

BATTLE DAMAGE ASSESSMENT (BDA): **AREA SCREENED** AIM POINT GRID:

DA FORM 2399, MAY 2017 PREVIOUS EDITIONS ARE OBSOLETE. APD LC v1.00

COMPUTER'S RECORD

For use of this form, see TC 3-22.91; the proponent agency is TRADOC

ORGANIZATION				DATE		TIME		OBSERVER ID		TARGET NUMBER		
SITUATION F								D 61		CA 0706		
☒ ADJUST FIRE ☐ FIRE FOR EFFECT ☐ IMMEDIATE SUPPRESSION				SHIFT FROM _____		POLAR _____		OT DIRECTION _____		ALTITUDE _____		
GRID <u>026 / 622</u> OT DIRECTION <u>2400</u> ALTITUDE <u>450</u>				Conditions are: Wind speed: 4 knots; Temp gradient: Lapse; and Humidity: 60%.				INTERVAL _____ ☐ DOWN ANGLE _____ ☐ _____				
TARGET DESCRIPTION												
METHOD OF ENGAGEMENT				Screen breach site 400 m; crosswind; 8 min duration				MTO: 3 700				
FDC ORDER			INITIAL CHART DATA			INITIAL FIRE COMMAND			ROUNDS EXPENDED			
MORTAR TO FFE <u>SEC</u>			DEFLECTION <u>2426</u>			MORTAR TO FOLLOW <u>SEC</u>			(1) HE			
MORTAR TO ADJ <u>#1</u>			DEFLECTION CORRECTION			SHELL AND FUZE <u>HEQ</u>						
METHOD OF ADJ <u>1 RD</u>			☐ L ☐ R									
BASIS FOR CORRECTION _____			RANGE <u>2425</u>			MORTAR TO FIRE <u>#1</u>						
SHEAF CORRECTION _____			VI/ALT CORRECTION +50 ☒ + ☐ - +25			METHOD OF FIRE <u>1 HE/1 RP I/ADJ</u>			MAX ORD			
SHELL AND FUZE <u>HEQ & 1 RP I/ADJ</u>			☒ + ☐ - +25			<u>3 RDS RP I/FFE</u>			<u>1561m</u>			
<u>RP I/FFE</u>			RANGE CORRECTION			DEFLECTION <u>2426</u>						
METHOD OF FFE <u>3</u>			☐ + ☐ -			CHARGE <u>2</u>			TOF			
RANGE LATERAL SPREAD _____			CHARGE <u>2</u>			ELEVATION <u>1181</u>			<u>35.9</u>			
TIME OF OPENING FIRE <u>W/R</u>			RANGE <u>2450</u>			TIME SETTING _____			MARK TIME			
MOC TYPE WR ☒ AMC ☐ TOT ☐ OTH ☐			AZIMUTH <u>3074</u>									
ANGLE T <u>670</u>												
OBSERVER CORRECTION			CHART/SAFETY DATA			SUBSEQUENT COMMANDS						
DEV	RANGE	TIME (HEIGHT)	DEF/AZ	RANGE +25	MORTAR FIRE	METHOD FIRE	AIM AZIMUTH	DEFLECTION	CHARGE	TIME	ELEV	
L50	+100		2469	2475				2469	2500		1170	(2) HE
	+100		2494	2550				2494	2575		1153	(3) HE
Repeat RP						1 RD RP			2	29.2	1024	(1) RP
	FFE				SEC	3 RDS RP					1024	(13) RP
	Continuous fire from Right		SEC	10 RDS	AT	12 SEC INT.	AMC					(53) RP
						S/R 1RD						
						EOM						
BATTLE DAMAGE ASSESSMENT (BDA):			AREA SCREENED			AIM POINT GRID:						

**NOTES
FOR
QUICK SMOKE MISSION**

**400m_ = 4 (expressed in 100's of meters)
 x.2 (Scaling factor)
 = .8
 x 6 (# of RDS from RP smoke card)
 =-4.8 (Round UP to whole number)
 5 RDS For 1 min**

**5 X 2mins = 10 RDS TO ESTABLISH:
(LESS THAN 12 RDS ROUND UP TO MIN. OF 12)
5 X 8 = 40 RDS TO MAINTAIN**

**60 SEC Divided by RPM TO MAINTAIN (5) =
12 SEC = 12 SEC INTV.**

= 3 RDS I/FFE

NOTE: 4 GUNS $\overline{12 \text{ RDS TO EST (12/4)}}$