Report Date: 05 Dec 2024

071-COM-1014
Locate an Unknown Point on a Map and on the Ground by Intersection
Status: Approved

Security Classification: U - Unclassified

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - This training product has been reviewed by the training developers in coordination with the G2, Fort Moore, GA 31905 foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

Conditions: You are a member of a squad or section and have a requirement to determine the location of the unknown point on the map. You have a 1:50,000-scale military map, a magnetic compass, a military protractor, pencil, paper, and an item that can be used as a straight edge. There are at least two well-defined points on the ground that you can locate on the map. Some iterations of this task should be performed in MOPP 4.

Standards: Determine the grid coordinates of the unknown point to within 100 meters; include the two-letter 100,000 meter square identifier, using either the map-and-compass method or the straight edge method.

Special Conditions: None

Safety Risk: Low

MOPP 4: Sometimes

Task Statements

Cue: None

DANGER

None

WARNING

None

CAUTION

None

Remarks: None

Notes: Intersection is the location of an unknown point by occupying at least two (preferably three) known positions on the ground (either successively by one Soldier or simultaneously by two or more Soldiers), then plotting on the map the grid azimuth of each of these known points to the unknown point, and identifying the point on the map where the lines intersect. It is used to locate distant or inaccessible points or objects such as enemy targets and danger areas. There are two methods of intersection: the map-and-compass method and the straight edge method.

Performance Steps

1. Identify an unknown point on a map by intersection using the map-and-compass method (Figure 1).

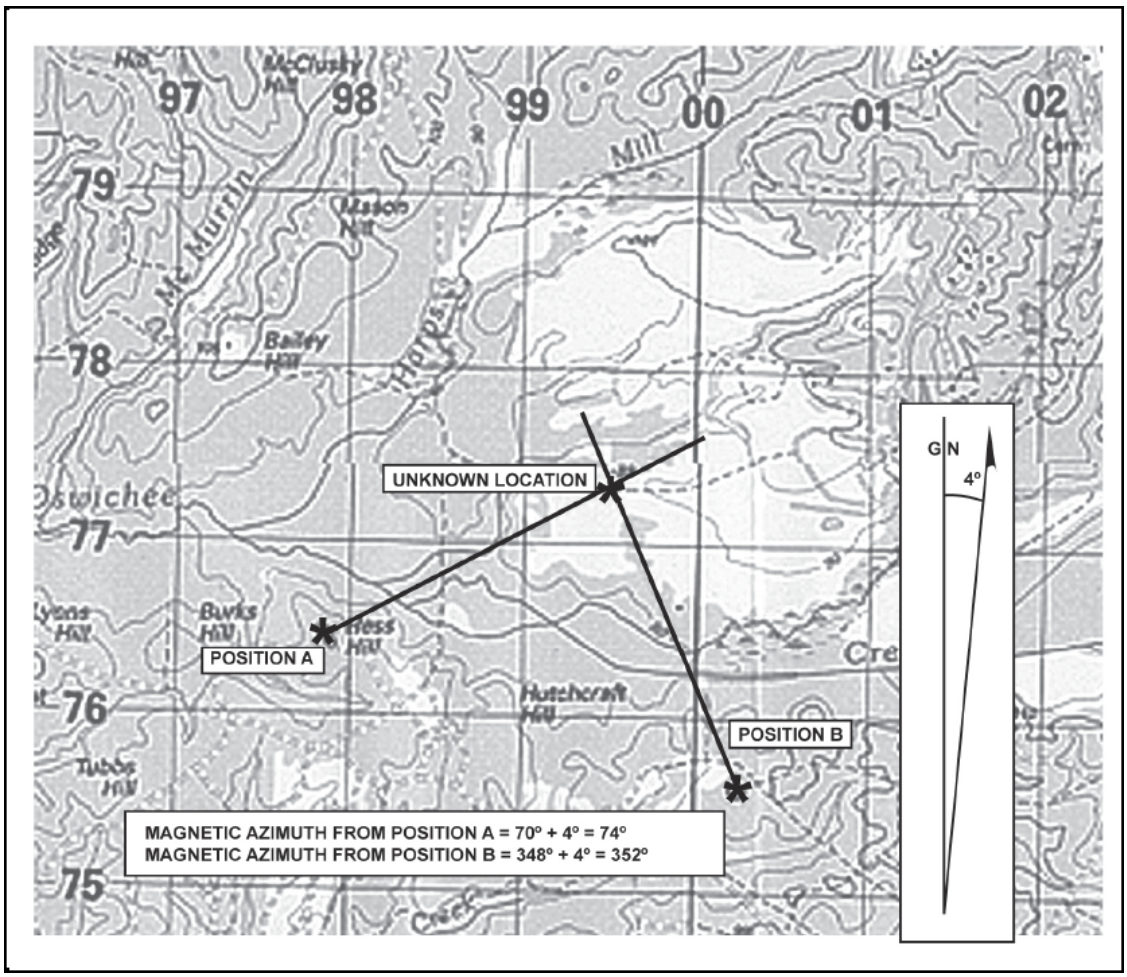

Figure 1.
Intersection using the map-and-compass method.

a. Orient the map on a flat surface using a compass.

b. Plot grid azimuths from known points to the unknown point on the map.

(1) Mark your position (the observers) on the map.

(2) Determine the magnetic azimuth from your position to the unknown point.

(3) Convert the magnetic azimuth to a grid azimuth.

(4) Place the index point of a protractor on your plotted position.

(5) Align the protractor's 0 to 180-degree line to the top of the map's North-South grid line.

(6) Ensure the 0-degree mark is pointing to the north (or top of map).

(7) Place a tick mark on the map beside the number on the protractor that corresponds to the computed grid azimuth.

(8) Draw a straight line from your plotted position to the tick mark and beyond.

(9) Repeat steps 1b(1) through 1b(8) for each observer position.

c. Identify the point where the lines intersect as the location of the unknown point.

d. Determine the grid coordinates to this location to the desired accuracy.

2. Identify an unknown point on a map by intersection using the straight edge method (Figure 2).

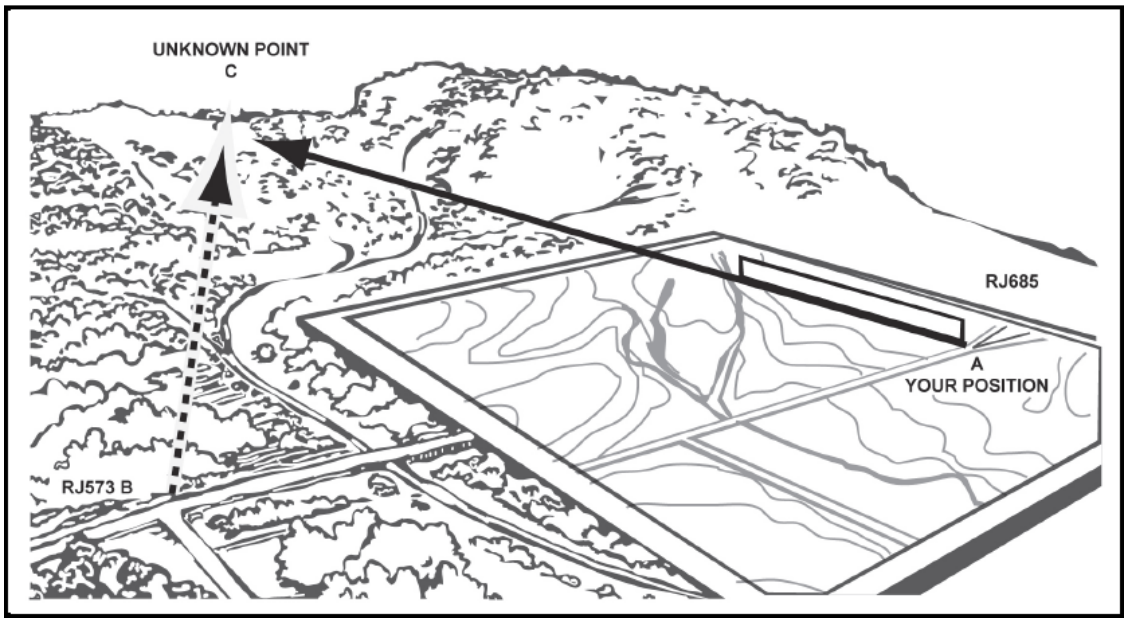

Figure 2.
Intersection using the straight edge method.

a. Orient your map on a flat surface using terrain association.

b. Mark your position (the observers) on the map.

c. Draw an intersection line for each of these plotted points.

(1) Lay a straight edge on one of the two known observer points on the map.

(2) Rotate the straightedge on the map until the straightedge lines up with both the known observer position on the map (Point A and Point B in Figure 2) and the unknown position in the distance (Point C in Figure 2).

(3) Draw a line along the straight edge from the known observer position toward the unknown position on the ground.

(4) Repeat steps 2c(1) through 2c(3) for each plotted point.

d. Identify the point where the lines intersect as the unknown location.

e. Determine the grid coordinates to this location to the desired accuracy.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier scores a NO-GO, show the Soldier what was done wrong and how to do it correctly.

Evaluation Preparation: Setup: Provide the Soldier with the equipment and materials described in the conditions statement.

Brief the Soldier: Tell the Soldier what is required to successfully complete the task by reviewing the conditions and standards. Stress the importance of observing cautions, warnings, and dangers, as applicable.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Identified an unknown point on a map by intersection using the map-and-compass method.			
2. Identified an unknown point on a map by intersection using the straight edge method.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary	Source Information
	TC 3-25.26	Map Reading and Land Navigation	Yes	Yes	

TADSS : None

Equipment Items (LIN): None

Materiel Items (NSN) :

Step ID	NSN	LIN	Title	Qty
	0000-00-0.C63317		COMPASS LENSATIC	1
	7510-00-164-8864		Lead Pencil Graphite 2 (DISCONTINUED WITHOUT REPLACEMENT) (DISCONTINUED WITHOUT REPLACEMENT)	1
	6675-01-431-5541		Scale, Drafting	1
	7643-01-404-4393		Topo, MC&G Products	1

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card.

Safety: In a training environment, leaders must perform a risk assessment in accordance with current Risk Management Doctrine. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW current CBRN doctrine.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
071-COM-1001	Identify Terrain Features on a Map	071 - Infantry (Individual)	Approved
071-COM-1002	Determine the Grid Coordinates of a Point on a Military Map	071 - Infantry (Individual)	Approved

Supported Individual Tasks : None

Supported Collective Tasks : None

Knowledges :

Knowledge ID	Knowledge Name
071-NAV-0026	Terrain Features
071-NAV-0027	Military Grid Reference System
071-NAV-0030	Grid Magnetic Angle
071-NAV-0032	Azimuths
071-NAV-0033	Distance Measuring Techniques
071-NAV-0021	Compass Operations
071-NAV-0023	Cardinal Directions
071-NAV-0024	Intersection and Resection Techniques
071-NAV-0025	Terrain Association

Skills :

Skill ID	Skill Name
071-900-0003	Read a Protractor
071-NAV-0010	Identify Topographical Symbols on a Map
071-NAV-0011	Identify Terrain Features on a Map
071-NAV-0012	Determine the Grid Coordinates of a Point on a Military Map
S0819	Convert Azimuths on a Military Map
071-NAV-0017	Orient a Map to the Ground by Map Terrain Association
071-NAV-0003	Ability to Read a Map
071-NAV-0019	Determine Azimuths using a Protractor
071-NAV-0004	Determine Direction with a Compass

ICTL Data : None