EO M390.05 – DETERMINE BEARINGS ON A MAP AND ON THE GROUND

1. **Performance.** Determine Bearings on a Map and on the Ground.

2. **Conditions**

   a. Given:

      (1) Topographical map,

      (2) Compass,

      (3) Predetermined declinations,

      (4) Supervision, and

      (5) Assistance as required.

   b. Denied: N/A.

   c. Environmental: Field setting during the day.

3. **Standard.** The cadet shall determine bearings on a map and on the ground.

4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Identify and explain the 16 points of a compass, to include: a. the four cardinal points, b. the four inter-cardinal points, and c. the eight intermediate points.	Interactive Lecture	10 min	A2-041 (p. 47)
TP2	Explain the degree system on a compass.	Interactive Lecture	5 min	A2-041 (p. 47)
TP3	Identify and explain the three norths, to include: a. true north, b. grid north, and c. magnetic north.	Interactive Lecture	5 min	A2-041 (p. 50, p. 51)
TP4	Explain bearings, to include: a. the definition of a bearing, and b. the types of bearings.	Interactive Lecture	5 min	A2-041 (pp. 48–50)
TP5	Explain, demonstrate and have the cadets practice determining a bearing on a map by: a. setting the predetermined declination on the compass; b. identifying and marking the start (point A) and finish (point B) points on a map; c. drawing a plotting ray from point A to point B;	Demonstration and Performance	15 min	A2-041 (p. 70)

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TP	Description	Method	Time	Ref
	d. laying the fully opened compass with the edge of the compass base plate along the plotting ray, and the sighting arrow pointed in the direction of travel (point A to point B); e. holding the compass in place and rotating the compass dial so that the compass meridian lines align with the easting lines on the map, ensuring north on the dial points north on the map; and f. reading the bearing at the luminous index pointer.			
TP6	Explain, demonstrate, and have cadets determine the bearing of a prominent object, using the following steps: a. Set the predetermined declination on the compass. b. Hold the compass at eye level and at arm's length, and turn to face the prominent object. c. Aim at the object using the compass sight, ensuring the sighting line is in line with the index pointer. d. Adjust the compass cover so the compass dial is seen in the sighting mirror. e. Look in the mirror and turn the compass dial until the magnetic needle is over the orienting arrow (put the red in the bed). f. Read the number on the compass dial at the luminous index pointer.	Demonstration and Performance	10 min	A2-041 (pp. 68–70)

5. **Time**

a.	Introduction/Conclusion:	10 min
b.	Interactive Lecture:	25 min
c.	Demonstration and Performance:	25 min
d.	Total:	60 min

6. **Substantiation**

a. An interactive lecture was chosen for TPs 1–4 to introduce the cadets to the compass, the degree system, the three norths, and bearings.

b. Demonstration and performance was chosen for TPs 5 and 6 as it allows the instructor to explain and demonstrate determining bearings on a map and on the ground while providing an opportunity for the cadets to practice these skills under supervision.

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7. **References.** A2-041 B-GL-382-005/PT-001 Canadian Forces. (2006). *Maps, Field Sketching, Compasses and the Global Positioning System*. Ottawa, ON: Department of National Defence.

8. **Training Aids**

   a. Presentation aids (eg, whiteboard/flip chart/OHP/multimedia projector) appropriate for the classroom/training area,

   b. Topographical map, and

   c. Compass.

9. **Learning Aids**

   a. Topographical map,

   b. Compass, and

   c. Predetermined declinations.

10. **Test Details.** This EO is assessed IAW Chapter 3, Annex B, Appendix 6, (390 PC).

11. **Remarks.** To preserve and reuse the maps, the maps should be covered or coated to allow the use of wet-erase markers instead of pencils or pens.

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