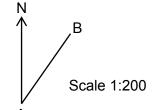
Topic Check In - 10.01b and 10.01c Units and measurement

- 1. A three figure bearing of 090° is the same as which direction on a compass?
- NW NE W SE
- 2. A compass bearing of SW is the same as which three-figure bearing?
- 3. A map is drawn to a scale of 1 : 5000 which means:

1 cm on the map represents ____ cm or ____ m.

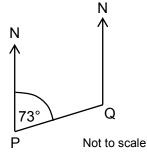
- 4. A road on a map is 5 cm long and represents an actual distance of 200 m. What scale is used for the map?
- 5. Carl travels from point A to point B, as shown on the scale diagram below.



Complete this statement.

Carl travels on a bearing of _____ for ____ m.

6. The diagram on the right shows a journey from P to Q. Show that the bearing of P from Q is 253°.



A boat navigates around a coastline.
 Choose a suitable scale and draw the path the boat takes.
 Show that the boat has travelled approximately 400 m North in total.

	Bearing	Distance
From W to X	060°	500 m
From X to Y	090°	300 m
From Y to Z	075°	600 m

- 8. Lifeboat station X is due West from lifeboat station Y, 8km apart on the coast. They both receive an SOS from a boat in difficulty out at sea. Station X receives the signal on a bearing of 040° and station Y on a bearing of 290°. Explain which station should send a lifeboat out for the rescue operation.
- 9. A light aircraft flies on a bearing of 080° for 400 km from Town A to Town B. It then flies to Town C on a bearing of 130° for 100 km. Find the distance and bearing of the direct route from Town C back to Town A.





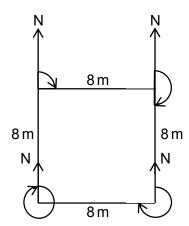
10. A submarine, anchored at sea, detects a moving object with its sonar. The table below shows two sonar readings taken at a 10 second interval.

Time	Bearing from submarine	Distance from the submarine
0 seconds	150°	50 m
10 seconds	070°	100 m

Using a scale of 1 cm to represent 10 m, draw a scale diagram to show this information and calculate the speed of the object.

Extension

a) A robot is programmed to move around a square lawn of side 8 m. Write the instructions giving the angles it turns as bearings.



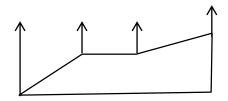
b) The robot is then programmed to move in the shape of a regular hexagon of side 6 m. Write the instructions giving the angles it turns as bearings.





Answers

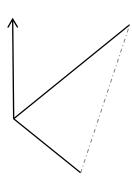
- 1. East
- 2. 225°
- 3. 5000 cm or 50 m
- 4. 1:4000
- Angle = 035°
 Length = measured length dependent upon reprographic effects × 2 for distance in m (measured length dependent upon reprographic effects × 200 = distance in cm)
- 6. Bearing is $73^{\circ} + 180^{\circ} = 253^{\circ}$ oe
- 7. Possible scale 1 : 10000 or 1 cm represents 100 m Distance North = 400 m (± 20 m)



≈ 4 cm on scale diagram

- 8. Students to recognise that bearing of 290° will mean a 20° angle inside triangle. Scale diagram gives XB = 2.9 km and YB = 6.5 km.

 Alternatively, students may sketch diagram and use knowledge of relationship between angles and lengths of triangles (smallest interior angle opposite shortest side length).
- 9. Distance 470 km (± 20 km), bearing 270° (± 2°)
- 10. Distance travelled in 10 seconds = $104 \text{ m} (\pm 2 \text{ m})$ Speed = $10.4 \text{ m/s} (\pm 0.2 \text{ m/s})$







Extension

a) Square

Bearing	Distance
090°	8 m
180°	8 m
270°	8 m
360°	8 m

b) Hexagon

Bearing	Distance
090°	6 m
150°	6 m
210°	6 m
270°	6 m
330°	6 m
390°	6 m





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Assessment Objective	Qu.	Topic	R	Α	G
AO1	1	Translate a three figure bearing to a compass direction.			
AO1	2	Translate a compass bearing to a three figure bearing.			
AO1	3	Interpret the scale of a map.			
AO1	4	Define the scale of a map.			
AO1	5	Measure a bearing and distance from a scale diagram.			
AO2	6	Calculate bearings from a diagram.			
AO2	7	Draw a scale diagram.			
AO2	8	Use bearings to draw a triangle.			
AO3	9	Solve a return journey problem.			
AO3	10	Use a scale diagram to solve a speed problem.			

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