Trig Worksheet – Bearings

There are two ways to express a navigational heading or a “bearing”.

1. When a single angle is given, it is understood that the bearing is measured in a clockwise direction from due north. The bearing from A to C is 30°.

   ![Diagram of bearing 30° from A to C]

2. The other system starts with a north or south line and uses an acute angle to show direction.
   The bearing from A to C is S 52° E (52° East of South)

   ![Diagram of bearing S 52° E from A to C]

Give a diagram that represents each bearing.

1. bearing of 32°

   ![Diagram of bearing 32°]

2. bearing of 304°

   ![Diagram of bearing 304°]

3. N 42° E

4. S 31° E

5. N 52° W
**Bearing:** Other applications of right triangles involve bearing, an important concept in navigation. There are two methods for expressing a bearing. When a single angle is given, such as 164°, it is implied that the bearing is measured in a clockwise direction from due north.

Examples: The solutions are shown on the next page.

1. The bearing of point B from point C is 254°. The bearing of point A from point C is 344°. The bearing of point A from point B is 32°. If the distance from A to C is 780 meters, find the distance from A to B.

2. Two ships leave a port at the same time. The first ship sails on a bearing of 32° at 16 knots and the second on a bearing of 122° at 24 knots. How far apart are they after 2.5 hours?

3. The bearing from point A to point B is S 55° E and from a point B to point C is N 35° E. If a ship sails from A to B, a distance of 81 km, and from B to C, a distance of 74 km, how far is it from A to C?

4. A ship leaves a pier on a bearing of S 62° E and travels for 75 km. It then turns around and continues on a bearing N 28° E for 53 km. How far is the ship from the pier?

5. From a point A on the ground, the angle of elevation to the top of a tall building is 24.1°. From a point B, which is 600 feet closer to the building, the angle of elevation is measured to be 30.2°. Find the height of the building.

6. A pilot measures the angles of depression to two ships to be 40° and 52°. If the pilot is flying at an elevation of 35,000 feet, find the distance between the two ships.

7. The angle of elevation from Lone Pine to the top of Mt. Whitney is 10°50′. A man traveling 7 km from Lone Pine along a straight level road toward Mt. Whitney, finds the angle of elevation to be 22°40′. Find the height of the top of Mt. Whitney along the level road.