©REACH THE WORLD





NameDateClass1. Imagine that Endurance took 13 hours to sink the first 5,000 feet. If a current from the surface of the water to 5,000 feetbelow the surface is moving at 8 knots (1 knot = 1 nautical mile per hour), how far, in nautical miles, would Endurance'sfinal resting place be from its sinking site? Draw a diagram to explain your answer.

2. Between 5,000 and 8,000 feet below the surface, there's a current moving at 5 knots in the opposite direction. Imagine that Endurance takes 6 hours to sink between 5,000 and 8,000 feet below the surface. Between 8,000 and 10,000 feet below the surface, the water is still. How far, in nautical miles, would the Endurance's final resting place be from its sinking site? Draw a diagram to explain your answer.

3. Let's assume that the S.A. Agulhas II is parked at the Endurance's sinking site. Use the distance between the sinking site and the final resting place from your answer for #2 to calculate the angle that the Agulhas II's sub-sea robotics team should send their AUV to search for the Endurance. Draw a diagram to explain your answer. (1 nm = 6,076 feet)



ANSWER KEY



Name	Date	Class
------	------	-------

1. Imagine that Endurance took 13 hours to sink the first 5,000 feet. If a current from the surface of the water to 5,000 feet below the surface is moving at 8 knots (1 knot = 1 nautical mile per hour), how far, in nautical miles, would Endurance's final resting place be from its sinking site? Draw a diagram to explain your answer.

13 hours x 8 nm/h 104 nautical miles

2. Between 5,000 and 8,000 feet below the surface, there's a current moving at 5 knots in the opposite direction. Imagine that Endurance takes 6 hours to sink between 5,000 and 8,000 feet below the surface. Between 8,000 and 10,000 feet below the surface, the water is still. How far, in nautical miles, would the Endurance's final resting place be from its sinking site? Draw a diagram to explain your answer.

104 nautical miles - (6 hours x 5 nm/h) 104 nautical miles - 30 nautical miles 74 nautical miles

3. Let's assume that the S.A. Agulhas II is parked at the Endurance's sinking site. Use the distance between the sinking site and the final resting place from your answer for #2 to calculate the angle that the Agulhas II's sub-sea robotics team should send their AUV to search for the Endurance. Draw a diagram to explain your answer. (1 nm = 6,076 feet)

Remind students of SOH-CAH-TOA Tan = Opposite/Adjacent tan(x) = 74 nautical miles/10,000 feet tan(x) = 449,633 ft/10,000 ft x = 44.96°

