# NAVAL HISTORY STEM-H LESSON PLAN

**LESSON PLAN**: Ship, Submarine, and Sea Creature Sounds in the Sea

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**2012 NAVAL HISTORICAL FOUNDATION STEM-H TEACHER FELLOWSHIP**

**ACTIVITY THREE: Solving Radical Expressions**

**OBJECTIVE**: Student will solve radical expressions algebraically. Student will calculate radical expressions used in maneuvering the ships while at sea. Sound waves, water waves, and light waves and radar involve trigonometry and algebra. Pythagorean Formula is a concept used in Trigonometry and Algebra 1 & 2. Formulas can help you find density, velocity and fluid flow inside a membrane.

**MATERIALS**: Math worksheet, scientific graphing calculator, worksheet, paper, pencils, Radical Formula Rule Sheet

**INSTRUCTION**: Practice solving a radical expression algebraically. Students always ask and question when they will need to know or learn something that is part of the curriculum. In sonar equations for submarine operation, they might come across radical expressions that need to be solved either by using technology or by hand, if the technology goes astray at a crucial moment. Practicing simplifying radical expressions helps the sonar tech and fire controlman be more prepared and ready in case of a technological malfunction and to check sonar and fire control system operation.

Solve the following:

1. $(25)^{1/2}$ **5**
2. $(100)^{1/2}$ **10**
3. $(225)^{1/2}$ **15**
4. $(27)^{1/3}$ **3**
5. $(1000)^{1/3}$ **10**
6. $(16)^{1/2}$ **4**
7. $(49)^{1/2}$ **7**
8. $(10000)^{1/2}$ **100**
9. $(8)^{1/3}$ **2**
10. $(64)^{1/3}$ **4**