

## Catching the Perfect SAR Waves – Understanding the Problem

1. What is a wave?
2. Draw wave with a low frequency and one with a high frequency.
3. List the seven electromagnetic radiation waves in order from low frequency to high frequency.
4. For each wave listed on three, approximate the size in terms of an object.
5. What does the acronym RADAR stand for?
6. Draw a diagram of how a radar system works. Use the keywords transmitter, receiver, antenna, target, and radar display to label your drawing.

7. What is the difference between Synthetic Aperture Radar and Inverse Synthetic Aperture Radar?
  
8. Fill in the missing word: Essentially, radar systems are \_\_\_\_\_ calculating devices.
  
9. The Pythagorean Theorem is only applied to what type of angles?
  
10. Give the formula for the Pythagorean Theorem, the representation of each variable, and what we can use it for.
  
11. In your own words, restate the problem in slide number 11 (Rise to the Challenge).
  
12. List the engineering and science subjects that electrical engineers apply to design SAR systems.
  
13. Given that SAR technology provides structural information to geologists and target information for military operations, what other functions may SAR technology provide? Consider a gulf coast oil spill.