

Student Signatures: _____ Team #: _____
Team Name: _____

***Mesa Robles Science Olympiad Invitational
January 30, 2016***

Sound Off!

To the Student: Welcome to Road Scholar!

You will need pens, pencils, ruler, protractor, and calculator.

You may use any printed resources you brought with you.

You may not use a computer.

Your names, team name and team number must be written both on this booklet and the answer sheets.

You may write in this booklet for scrap, but your final answers must be written on the answer sheets provided. All questions and answer sheets must be attached and in order.

Your answers must be complete - measurements must have units; town names must include state, province, or other appropriate identification.

If you are not certain as to what you should be doing, or if a question does not make sense to you, ask the event supervisor what to do.

Make sure you read the story line in italics. Some of the questions will not make sense without the story, so they will be harder to you.

Cautions: Avoid penalty points or disqualification!!!

Make sure you do not make any marks on any maps provided to you!

Make sure you start working only when told to do so, and stop exactly when told to do so by the event supervisor.

Good luck!

We're looking for a few good men...

When you live in Southern California, it is hard to avoid noticing the presence of many different branches of the military. One of those branches is the Marines. The company you work for, SO Engineering and Surveying, has been hired by the Marine Corp to help develop a variety of logistics plan for moving men and equipment throughout Southern California.

At your station you have two maps:

The AAA Los Angeles Highway map.

USGS Las Pulgas Quadrangle map printed in sections on 8.5" x 11" paper (downloaded from the Internet)

***** Use the AAA Los Angeles Highway map*****

Please answer the following questions about State Highway Maps

1. What direction do 2-digit even-numbered interstate highways always run?
2. What direction do 2-digit odd-numbered interstate highways always run?
3. Name three military bases that can be found on the Los Angeles Highway map.
4. What are the map grid coordinates of those three bases?

The Marine Corps would like to set up some regular supply runs between it's base near San Diego and the one that is close to Joshua Tree.

5. How many road miles is it from Yucca Valley Airport (the closest civilian airport to the base near Joshua Tree) and Oceanside Municipal Airport (the closest civilian airport to the base near San Diego)?
6. How many road miles is it from the Marine Corps base near San Diego to the Naval Air Station in San Diego?
7. What is the scale of this map in miles/inch?
8. How many miles from west to east do you have to travel to go all the way across the air force base located north of Lancaster at the widest point?
9. Using Interstate and State highways, how far is it in miles from the Southwest corner of the Air Force Base north of Lancaster to the dry lake that is just Northwest of the Northwest corner of the Marine Corps base near Joshua Tree?(Express your answer to the nearest 1/2 mile).

***** Map Change - Use USGS Las Pulgas Canyon Quadrangle Map *****

The Marine Corp is big on contingency planning. They have asked you to assist them in updating some of their emergency response plans for Camp Pendleton.

10. How far would a firetruck have to drive to get from the firehouse on Nelson Drive to the firehouse on Las Pulgas Rd.?
11. How much elevation is gained when driving from the intersection of El Camino Real and Las Pulgas Rd to the north eastern end of Las Pulgas Rd?
12. What is the latitude and longitude of the southeast corner of the Las Pulgas Canyon Quadrangle Map?
15. What is the basic contour interval on this map?
16. What is the ratio scale of this map?
17. What series is this map?
18. What are the names of the Adjoining Quadrangle Maps to this one? (Name as many as possible)
19. How far is it from the intersection of Stuart Mesa Rd and Hammond to the firehouse on Nelson Dr.?
20. What does "UTM" stand for?
21. What are the UTM coordinates for San Onofre Mountain? (Give your answer to the nearest UTM coordinates that can be read directly off the Quadrangle map without calculation).
22. How many inches represent one mile on this map? Give your answer to the nearest 1/4 inch.
23. What is the Magnetic North Declination at the center of this quadrangle?
24. When was the Hydrography of this Quadrangle last updated?
25. What is the topographic feature that can be found at 3686000mN and 454000mE?