



2016 Fall Rural Robotics Challenge

November 5, 2016

Math Problems (6th – 8th)

Remember: There is more than one way to work each problem.

Each team of two completes one set of problems for their competition category. For each of the four problems below complete them on one sheet of paper each, show ALL your work including all calculations and organize your work as follows:

- a) Print the names of the team members at the top.
- b) Draw a sketch of the problem and include all the facts you are given.
- c) Show all formulas and all your work, including calculations. Step by step is best for the most points.
- d) Describe in words what you had to do to solve the problem.
- e) Draw a square around the final answers. Be sure to include any units.

Problem #1: Six times a number added to negative four, then subtracted from three times the sum of twice the number and five is how much?

Problem #2: Find the measure of an angle whose supplement measures 38° less than three times its complement.

Problem #3: Tammy is about to start 7th grade. She wants to put \$270 in savings until after she graduates in 6 years. If she puts it in an account that makes 5% annual interest, how much money will be in the account when she starts college? *[At the end of each year the interest is added back to the savings account]*

Problem #4: A manufacturer has fixed costs of \$1000 to produce gizmos. Each gizmo costs \$5 to make. How many gizmos can the manufacturer make if they have \$3265?

Problem #5: This problem you will be given during judging. The team will have 2 mins to decide how to approach the problem and then explain it to the judges. You are not expected to give the answer. We are interested in your approach to the problem more than the answer. Think clearly, logically, and be organized.

Team members should work together to come up with the best solutions. Teams cannot work together.

READ THE RULES CAREFULLY. YOU WILL BE JUDGED ON FOLLOWING THE RULES AND IN SHOWING ALL YOUR WORK, INCLUDING ALL CALCULATIONS. REMEMBER ONE SHEET OF PAPER FOR EACH PROBLEM. BE READY TO EXPLAIN TO THE JUDGES ONE OF THE PROBLEMS #1 - #4 THAT THE JUDGES WILL SELECT.

THE MATH PROBLEM SHEETS MUST BE TURNED IN AT TEAM CHECK-IN. ONE SHEET FOR EACH PROBLEM. YOU SHOULD TURN IN FOUR SHEETS PER TEAMMATE. PLEASE HAVE THEM STAPLED TOGETHER.