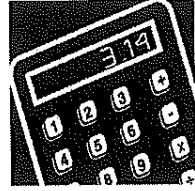


Pennsylvania - District 2  
*Education... with a competitive side*

## RELATED TECHNICAL MATH



### **Clothing Requirements**

**For men:** Official white polo shirt with black dress slacks, black socks and black shoes.

**For women:** Official white polo shirt with black dress slacks or skirt, black sheer or skin-tone hose and black shoes.

*Note:* At the district level if a student is not able to wear the official SkillsUSA attire he/she may wear an outfit that would be acceptable in their specific field of study. *Please keep in mind that official SkillsUSA attire will be required at the state and national level.*

### **Eligibility**

Open to active SkillsUSA members.

### **Equipment and Materials: Supplied by host school:**

1. Tables and chairs
2. Test problems and instructions
3. Scratch paper and pencils
4. Formula sheets and conversion tables/charts

### **Equipment and Materials: Supplied by Contestant:**

1. All students must have a one-page, typewritten résumé
2. Hand-held calculator – non programmed
3. No reference materials may be used other than those provided by the technical committee.
4. 2 sharpened pencils

### **Scope of the Contest – (Defined by the National Competition Regulations)**

*(District Competitions are meant to be a scaled down version of National Competition. It is important for the students to participate in a competition that will reflect a cross-section of the industry skills needed to prepare them for the state and national levels)*

To evaluate the contestant's understanding and ability to solve mathematical problems commonly found in the skilled trades and professional and technical occupations.

### **Knowledge Performance**

A written knowledge test will be required. A sound knowledge of geometry, algebra, trigonometry and basic statistics will prepare the students to exhibit their problem solving skills for this part of the contest.

### **Skill Performance**

There is no skill performance component of this contest.

### **Contest Guidelines**

1. The written knowledge test contains 50 problems applicable to any career and technical field. It covers applications of the fundamental operations of whole numbers, fractions and decimals, including applications of percentages, ratio and proportion, averages, areas and volumes.
2. The written knowledge test will provide the student the opportunity to demonstrate their problem-solving skills, not just their mathematical ability.
3. Students have two hours to complete the problems and check their answers.
4. Hand-held calculators may be used. Competitors need nothing more than a simple scientific calculator that can be purchased for about \$10-\$15. A graphing calculator is not necessary. The test is based on real world mathematical applications and reasoning — not theoretical mathematics.
5. No bonus will be given for early completion of the written knowledge test.

### **Standards and Competencies** – *(Summary of national technical standards list)*

The Standards and Competencies for this contest will be completed by the national technical committee in the 2009 edition of the Technical Standards.

### **Math Skills**

- Use fractions to solve practical problems
- Use proportions and ratios to solve practical problems
- Simplify numerical expressions
- Use scientific notation
- Solve practical problems involving percents
- Solve single variable algebraic expressions
- Solve multiple variable algebraic expressions
- Measure angles
- Apply Pythagorean Theorem
- Graph linear equations
- Solve problems using proportions, formulas and functions
- Find slope of a line
- Use laws of exponents to perform operations
- Solve quadratic equations
- Solve practical problems involving complementary, supplementary and congruent angles
- Use measures of interior and exterior angles of polygons to solve problems
- Solve problems involving probability and statistics

<b>2016 Related Technical Math Scorecard</b>		
<b>Item Name</b>	<b>Description</b>	<b>Points</b>
<b>Written Test</b>		<i>100</i>
<i>Resume Deduction</i>	<i>(Deduction)</i>	<i>10</i>
<i>Clothing Deduction</i>	<i>(Deduction)</i>	<i>5</i>
	<b>Total Points</b>	<i>100</i>

*Note: No cell phones or other electronic devices may be used at any time during a competition; this includes using a calculator function on a cell phone for competitions in which calculators are permitted.*