2024-26 EDITION

SkillsUSA CHAMPIONSHIPS

RELATED TECHNICAL MATH

SkillsUSA Championships Technical Standards

PURPOSE

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

First, download and review the General Regulations at updates.skillsusa.org.

ELIGIBILITY

Open to active SkillsUSA members. Each state may send one high school and one college/postsecondary competitor.

CLOTHING REQUIREMENTS

Class E: Competition Specific — Business Casual

- Official SkillsUSA white polo shirt
- Black dress slacks or black dress skirt (knee-length minimum)
- Black closed-toe dress shoes

Note: Wearing socks or hose is not required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/nonpattern.

These regulations refer to SkillsUSA Championships Clothing Classifications that are pictured and described at skillsusastore.org. If you have questions about competition uniforms, call the SkillsUSA Store at 888-501-2183.

Note: Competitors must wear their official competition clothing to the competition orientation.

EQUIPMENT AND MATERIALS

1. Supplied by technical committee:
   a. Test problems and instructions
   b. Scratch paper

c. Formula sheets and conversion tables/charts

2. Supplied by the competitor:
   a. Hand-held calculator
   b. No. 2 pencil
   c. All competitors must create and submit online a one-page single sided resume. See "Online Submission Requirements" below for guidelines.

Note: No reference materials may be used other than those provided by the technical committee.

Note: All national competitors must also check for competition-specific updates and/or competitor preparation instructions on the SkillsUSA website at updates.skillsusa.org.

PROHIBITED DEVICES

Cellphones, electronic watches and/or other electronic devices not approved by a competition's national technical committee are ***NOT*** allowed in the competition area. Please follow the guidelines in each technical standard for approved exceptions. Technical committee members may also approve exceptions onsite during the SkillsUSA Championships if deemed appropriate.

Penalties for Prohibited Devices

If a competitor's electronic device makes noise or if the competitor is seen using it at any time during the competition, an official report will be documented for review by the Director of the SkillsUSA Championships. If confirmed that the competitor used the device in a manner which compromised the integrity of the competition, the competitor's scores may be removed.

ONLINE SUBMISSION REQUIREMENTS

All SkillsUSA national competitors must submit their one-page single sided resume online. The deadline and link for online submissions will be published on updates.skillsusa.org.
Failure to submit any of the required document(s) listed below by the established deadline will result in a 10-point penalty.

1. One-page single sided resume

Your submission must be saved as PDF file type using the file name format of "Your Last Name_Your First Name_Resume." For example, "Amanda Smith" would save the individual PDF submissions file as:

- Smith_Amanda_Resume

OBSERVER RULE

The competition is closed to observers.

SCOPE OF THE COMPETITION

KNOWLEDGE PERFORMANCE

The competition will include a test assessing knowledge of geometry, algebra, trigonometry, and basic statistics will prepare the students to exhibit their problem-solving skills for this part of the competition. Competitors are also required to take the SkillsUSA Professional Development Test.

SKILL PERFORMANCE

Competitors will demonstrate their ability to solve math problems that deal with skilled technical real-world scenarios.

COMPETITION GUIDELINES

1. The knowledge test is comprised of 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 test will be comprised of problems that will allow competitors the opportunity to use their problem-solving skills as well as their mathematical ability.
3. Hand-held calculators may be used.
    a. Competitors need nothing more than a simple scientific calculator. A graphing calculator is not necessary. The test is based on real-world mathematical applications and reasoning not theoretical mathematics.
4. Students have two (2) hours to complete the problems and check their answers.
    a. Once the testing allotted session time has commenced, no additional time will be provided if a competitor reports late to the competition area.
    b. No bonus will be given for early completion of the knowledge test.
5. Competitors will not be allowed to go in or out of the competition area during testing.

STANDARDS AND COMPETENCIES

MM 1.0 — Demonstrate technical mathematical skills using planning and decision-making.

1.1 Establish work priorities.
1.2 Using information and processes to problem-solve and make choices.
1.1. Analyze key facts, data and situations.
1.2. Weigh multiple outcomes.
1.3 Apply new learning.
1.4 Employ technology to solve problems.
1.5 Evaluate the finished results and make appropriate modifications.

MM 2.0 — Project a professional self-image through attire and grooming.

2.1. Demonstrate a professional appearance in dress, good grooming, and personal presentation.
2.2. Display clothing that meets national standards requirement for competition.
2.3. Demonstrate good grooming in personal hygiene.

2.4. Wear clothing that fits well.
2.5. Present a wrinkle-free appearance.

MM 3.0 — SkillsUSA Framework

The SkillsUSA Framework is used to pinpoint the Essential Elements found in Personal Skills, Workplace Skills, and Technical Skills Grounded in Academics. Students will be expected to display or explain how they used some of these Essential Elements. For more, visit: www.skillsusa.org/who-we-are/skillsusa-framework/.

COMMITTEE IDENTIFIED ACADEMIC SKILLS

The technical committee has identified that the following academic skills are embedded in this competition.

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 percentages
- 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
- Solve problems involving symmetry and transformation
- Use measures of interior and exterior angles of polygons to solve problems
- Find arc length and the area of a sector

CONNECTIONS TO NATIONAL STANDARDS

State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards

- Numbers and operations
- Algebra
- Geometry
- Measurement
- Data analysis and probability

- Problem-solving
- Communication
- Connections
- Representation

Source: *NCTM Principles and Standards for School Mathematics. For more information, visit: http://www.nctm.org.*