



Mathematics

2026-2027

Qual ♦ Dist ♦ State*

*Grades 2-3 do not advance to State.

GRADES: 2, 3, 4, 5, 6, 7, 8 | ENTRIES: 3 PER SECTION | TIME: 30 MIN

RESOURCES: CIRCLE THEOREMS

SECTIONS. Each grade competes separately.

ENTRIES. As many as THREE students from each grade levels may be entered in the Mathematics District Contest from each school.

ADVANCING TO STATE. First and second place winners from grades 4 through 8 will advance to State. Third place winners will be alternates. **For grades 2 and 3, this contest concludes at District and does not advance to the State Tournament.**

NATURE OF THE CONTEST. The Mathematics contest tests the contestant's ability to solve a variety of mathematical problems studied at and above grade level. All contest materials, including two #2 pencils (mechanical acceptable) and eraser, other than the test itself, must be supplied by the contestant. No loose papers or other materials are allowed. Calculators are NOT permitted for use in the contest.

TEST STRUCTURE

Grades 2 & 3:	40 questions (choices A-D)
Grades 4 & 5:	40 questions (choices A-E*)
Grades 6, 7, 8:	50 questions (choices A-E*)

*Choice E is NOT for "none of these."

Test questions are similar to those found in state-adopted textbooks, but many items are usually tested at a higher grade level. For the grades 6-8 contest, approximately 25% of the problems will require knowledge of Algebra I computation skills. All tests will contain problems covering, but not limited to, numeration systems, arithmetic operations involving whole numbers, integers, fractions, decimals, exponents, order of operations, probability, statistics, number theory, simple interest, measurements (English and metric), and conversions normally covered (feet to inches, quarts to gallons, etc.). There will also be geometry problems normally covered in the middle school student's textbooks, including application of the Pythagorean theorem. Normal geometry problems will include finding area and volume

of polygons/polyhedra and circles/spheres. Various types of problems are randomly distributed throughout the test.

SPECIAL TOPIC. The special topic for grades 6-8 during the 2026 through 2027 competition years is "Circle Theorems." See Resources to download the information.

WHAT HAPPENS IN THE CONTEST. The contest director will announce the time and place that contestants and one adult should report for verification of the scoring of tests. (Substitutes taking the place of absent registered contestants should be sure to let the contest director know as they enter the room to save time at roll call.)

Answer sheets will be distributed to contestants first, followed by contestant ID-labeled tests distributed by student name. Contestants will be instructed to write their grade levels and their contestant ID numbers in the spaces provided on the answer sheet. Contestants must not open the test until the start signal is given. No alarm watches or other devices that emit sound are allowed in the contest room. Disqualification will result if such device makes a sound while placed in any portion of the room. Contestants may use any white spaces on the test to assist in computing answers. No additional paper will be provided.

TIME ALLOTTED. When the start signal is given, contestants will have 30 minutes to answer test questions. Contestants will remain quietly in their seats until the time has expired. The contest director will give a 5-minute warning when 5 minutes remain.

MARKING ANSWERS. Contestants may write on the test paper, but only the PRINTED CAPITAL letter answer should be written in the answer space on the answer sheet. Any marking in the answer space will constitute an attempt.

SCORING. Award 5 points for each correct answer. Deduct 2 points for each incorrect answer, or for each answer that was attempted, marked through or erased, and did not result in a correct answer. **No points** are

added or deducted for skipped or unanswered test items. Mark-outs are acceptable, as long as a correct answer is written beside the mark-out. If an answer is marked out and no correct answer is written in the answer space, 2 points deducted. Erasures are permitted. Any erased correct answer that can still be seen is counted correct. An erased answer that is not correct and does not have a correct answer written over or beside it constitutes an incorrect answer, whereby 2 points are deducted.

VERIFICATION PERIOD. See page 16 for complete rules for Verification Period.

MATERIALS. Last year's PSIA Mathematics tests and answer keys, plus tests from previous PSIA contests, are included in the PSIA Academic Study Materials Booklets, which may be ordered off the PSIA website.

PERSONNEL NEEDED FOR CONTEST.

1. *Contest Director.* May be a knowledgeable coach of contestants in the contest.
2. *Assistant Directors.* Two knowledgeable coaches from different schools other than director's. The second assistant may also serve as the Hall Monitor when testing begins.
3. *Graders.* Director and assistant director may also serve as graders. To expedite the grading process, provide at least two graders for every 15 papers.

SAMPLE QUESTIONS

GRADES 2-3:

1. Alex had eight quarters, six dimes, and nine nickels. He bought a candy bar and paid with five quarters, two dimes, and six nickels. How much did the candy bar cost?

- A. \$3.05 B. \$1.30 C. \$1.50 D. \$1.75

2. A pie is cut into equal fourths. Then each of these pie slices is cut into equal thirds. How many total slices are there after all these cuts?

- A. 7 B. 8 C. 9 D. 12

GRADES 4-5:

3. Each bag has 13 golf balls. How many total golf balls are there in B bags?

- A. $13 \times B$ B. $13 - B$ C. $B \div 13$ D. $B + 13$

4. What digit is in the ten-thousandth's place in the decimal representation of $\frac{6}{11}$?
A. 2 B. 3 C. 4 D. 5 E. NOT

GRADES 6-8:

5. Find the area of a triangle whose sides are 9 meters, 15 meters, and 12 meters.

- A. 54 sq. m. B. 90 sq. m.
C. 108 sq. m. D. 180 sq. m. E. NOT

6. Stacy washed four more than three times as many cars as Amanda washed. Together they washed 32 cars. How many cars did Stacy wash?

- A. 25 B. 22 C. 19 D. 16 E. NOT

Shall and Must List

Contestants **shall** use PRINTED (no cursive) CAPITAL (not lowercase) LETTERS for this contest.

Result: Count the question incorrect if the wrong type of response is given.

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Contestants **shall** write their Contestant ID on the Answer Sheets and not their name or their school name.

Result: Contest director should remedy the answer sheet by erasing or covering up the identifying information.

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Contestants **shall** write only their contestant ID and their answers on the answer sheet.

Result: Extraneous marks in answer blanks result in incorrect response for that answer. Extraneous marks outside the answer blanks should receive a warning to the contestant, but not a disqualification.