

Contest Corner: 2014 OCTM State Tournament of Mathematics Results

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Although Winter of 2014 was especially cold and snowy, the OCTM's State Tournament of Mathematics took place on February 22nd at test centers throughout Ohio as scheduled. Now is the time to start assembling a team to represent your school in the 2015 competition. The 2015 tournament will take place on February 28, 2015 at test centers located throughout Ohio. You can find registration information on the OCTM State Tournament of Mathematics at www.octmtournament.org. The overall results from the 2014 State Tournament of Mathematics are summarized in Table 1.

TABLE 1: 2014 Overall State Tournament of Mathematics Results

Rank	School	Score
1	Dublin Jerome High School	147
2	William Mason High School	129
3	Sycamore High School	127
4	Columbus Academy High School	124
	Revere High School	124
6	Solon High School	123
7	Perrysburg High School	119
8	Seven Hills Upper School	115
	Upper Arlington High School	115
	Western Reserve Academy School	115
11	Copley High School	114
12	Bellbrook High School	111
13	Dublin Coffman High School	108
14	Brecksville-Broadview Heights	106
15	Miami Valley High School	105
16	Thomas Worthington High School	104
17	Hilliard Darby High School	102
18	University School	101
19	Hawken Upper School	98
20	Ashland High School	97
	Jackson High School	97
22	Athens High School	96

As has been done for many years, the OCTM also presented awards and recognition to participating schools by their size. In this way, small schools are not put in direct competition with larger schools. OCTM uses a five level system to group schools. Level 1 schools have fewer than 86 students per grade level, Level 2 schools have between 86 and 137 students per grade level, Level 3 schools have between 138 and 233 students per grade level, Level 4 schools have between 234 and 387 students per grade level and Level 5 schools have more than 387 students per grade level. Table 2 shows the 2014 Tournament results by level.

The healthiest competition occurs when average people win by putting above average effort.

Colin Powell

TABLE 2: 2014 OCTM Tournament Results

LEVEL 1	LEVEL 2	LEVEL 3
Level 1: ($n \leq 85$)	Level 2: ($85 < n \leq 137$)	Level 3: ($137 < n \leq 233$)
1. 115 Seven Hills Upper	1. 124 Columbus	1. 124 Revere
2. 105 Miami Valley	2. 115 Western Reserve	2. 111 Bellbrook
3. 93 Wellington	3. 101 University	3. 96 Athens
4. 77 Laurel	4. 98 Hawken Upper	4. 93 Archbishop Hoban
5. 74 Russia	5. 95 Hathaway Brown	5. 86 Carroll
6. 70 Cincinnati Country Day	6. 85 Summit Country Day	6. 83 Celina
7. 65 New Bremen	7. 76 Cincinnati Hills Christian	7. 78 St Vincent-St Mary
8. 57 Fort Jennings	76 Gilmour	8. 70 Shawnee
9. 49 Granville Christian HS	9. 74 Central Catholic	9. 53 John Hay
10. 47 Ayersville	10. 73 Coldwater	10. 52 Perkins
11. 40 Worthington Christian	11. 66 Kirtland	11. 40 Shelby
12. 36 Lake Ridge	12. 60 Bluffton	12. 38 Centennial
36 Monroeville	13. 54 Highland	13. 30 Mount Notre Dame
36 Villa Angela-St Joseph	14. 48 Edison	14. 29 Poland Seminary
15. 34 Cardington-Lincoln	15. 45 Black River	15. 21 Canton South
LEVEL 4	LEVEL 5	
Level 4: ($233 < n \leq 387$)	Level 5: ($387 < n$)	
1. 147 Dublin Jerome	1. 129 William Mason	
2. 119 Perrysburg	2. 127 Sycamore	
3. 114 Copley	3. 123 Solon	
4. 106 Brecksville-Broadview Heights	4. 115 Upper Arlington	
5. 102 Hilliard Darby	5. 108 Dublin Coffman	
6. 97 Ashland	6. 104 Thomas Worthington	
7. 91 Westlake	7. 97 Jackson	
8. 84 Sylvania Southview	8. 95 Berea-Midpark	
9. 81 Avon Lake	9. 90 Lakota West	
10. 79 Olmsted Falls	90 St Xavier	
11. 78 Mayfield	11. 86 Lakota East	
12. 74 Aurora	86 Lincoln	
13. 68 Anthony Wayne	13. 77 Hilliard Davidson	
68 Dublin Scioto	14. 76 Walnut Hills	
15. 54 Stebbins	15. 60 GlenOak	

Seven problems selected from the 40 that appeared on the 2014 tournament are shown in Table 3. All of the problems can be solved using principles of algebra, geometry, and arithmetic intermixed with strong problem solving skills. Calculators are always allowed on the OCTM tournament. Visit the contest website (www.octmtournament.org) for copies of previous contests as well as answers. Old contests can be used with mathematics clubs or in math class to prepare mathletes for competition in 2015.

Start assembling a team to represent your school today! One of the most important things we, as teachers, can do for our students is to make competition available. Competition helps build comradery, a lifelong interest in mathematics, and a desire to achieve while building self-esteem to succeed. The calendar of events for the 2015 tournament is shown at the right. Hope to see your school in February at the 2015 State Tournament of Mathematics!

September 15, 2014	Coaches Begin Sign-up
September 15, 2014	Student Tournament Registration Opens Online
October 1, 2014	Tournament Announcement Letter Mailed
January 31, 2015	Deadline for receiving Registration Fee without late fee. (no late fee if postmarked by this date)
February 9, 2015	LAST Day for receiving Registration Fee - must include \$25.00 late fee
February 9, 2015	Student Tournament Registration Closes - No Registrations accepted after this date.
February 16, 2015	Deadline for Coaches to Finalize Student List Online
February 21, 2015	Tournament Test Day held at 25 Ohio Sites

Table 3: A Sampling from the 40 Problems from the 2014 OCTM Tournament.

	ANSWERS
1. Determine the exact value of $\frac{2^0}{1^4} + 2 \cdot 0 \cdot 1 \cdot 4$	1
2. The average of 20 numbers in a set is 14. The average of 14 of these numbers is 20. What is the average of 6 of the other numbers in the set?	0
3. An isosceles trapezoid has bases of lengths 20 and 14. If the area of the trapezoid is 68, determine its perimeter.	44
4. A day on Earth lasts 24 hours, while a day on Mars lasts 24 hours, 39 minutes, 35 seconds. Suppose 2014 days have passed on Earth. To the nearest day, how many days have passed on Mars?	1960
5. Find the perimeter of a $30^\circ - 60^\circ - 90^\circ$ triangle if the largest side's length is 14 cm.	$21 + 7\sqrt{3}$ cm or 33.1244 cm
6. How far is (20,14) from the center of the circle $x^2 - 16x + y^2 = 2014 + 18y$?	13 units
7. Teacher Louis Gliha drove from Cleveland to Bucyrus for the Bratwurst Festival. Upon leaving, his car odometer read 2014 miles. When he arrived, his odometer was the next possible palindrome, a number that reads the same forwards as backwards. If the trip took him 1 hour and 24 minutes, what was his average speed to the nearest mile per hour?	70 mph

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