

NEWSLETTER

VOL 40 NO. 2

MIDDLE / JR HIGH SCHOOL

Σ SIGMA

2018 - 2019

MATHEMATICS LEAGUE

NEXT CONTEST DATE:

December 3—7

WELCOME: Thank you to all of you sponsors who are willing to take on the extra work of conducting the SIGMA competition within your school. No doubt most, if not all, of you are doing it for no monetary compensation but you simply love to have students involved in problem-solving activities. We thank you for being part of the SIGMA competition this year. Some of you have large schools and some of you have small schools. Therefore, competition may not be as important as gaining problem solving skills. You might want to establish your own competition such as: competition within the classroom, competition with other classrooms or any other internal competition.

SUGGESTION: You will need to keep a cumulative score sheet for each student. To do this you might set up a spreadsheet with one column for student names and columns for each of the five contests. You could then have a column which sums the scores for each student after each contest.

CUMULATIVE SCORES REPORT: Use the half sheet for cumulative scores to indicate high scoring individuals whose cumulative scores at the end of contest #2 as indicated below. This form is used for all schools and therefore designed to be used for those reporting scores for grades 6, 7 and 8 or grades 7, 8 and 9. Therefore be sure to circle the grade level at the top of each column.

REPORT INDIVIDUAL CUMULATIVE SCORES OF 13 OR ABOVE—GRADES 6, 7, 8 AND 9.

NEXT NEWSLETTER: The next newsletter will contain a listing of contest #2 and cumulative scores for all schools and the top 20 schools in divisions 2 and 3 and in each of the grades 6, 7, 8 and 9.

WORD OF CAUTION: We want ALL students in SIGMA to participate under very similar situations. For that reason no questions should be answered during the competition by the teacher/sponsor and certainly no “prepping” for a particular SIGMA contest. Please DO NOT do problems that are similar to SIGMA problems a day or two before the competition. That gives your students an unfair advantage. The integrity of contest leagues depends solely on the integrity of the sponsors and students. Since we have the best sponsors in the world we want ALL students to have equal opportunities “to shine”.

INDIVIDUAL PERFECT SCORES ON CONTEST #1

6 TH Grade	39	8 TH Grade	48
7 TH Grade	35	9 TH grade	4

TOTAL PARTICIPANTS	7,272	2,003	Grade 6
CONTEST #1		2,439	Grade 7
		2,427	Grade 8
		403	Grade 9

The following is taken from *Math Charmers—Tantalizing Tidbits for the Mind* by Alfred S. Posamentier.

You might do this with your students by asking each student to write a three-digit number such that all three digits are different from each other. Of course, discourage students from picking 102 or some such simple number. You will want the students somewhat challenged, right?

Then have the students write all possible two-digit numbers that can be formed from these three digits making sure that they write all six of the two-digit numbers. Have them find the sum of these six numbers.

Finally have them divide the sum of these two-digit numbers by the sum of the digits in the original three-digit number.

Hopefully, the students will find it amazing that everyone got the same result. Of course, now the question is – can they prove it?

Example: Consider the three-digit number 365. Take the sum of all the possible two-digit numbers that can be formed from these three digits: $36 + 35 + 63 + 65 + 53 + 56 = 308$. Divide 308 by the sum of the digits of the original number: $3 + 6 + 5 = 14$. 308 divided by $14 = 22$.

Another example: Consider 549. Sum all possible two-digit numbers: $54 + 59 + 45 + 49 + 95 + 94 = 396$. Divide 396 by $5 + 4 + 9$ and the result again will be 22.

Proof: Let abc be the three-digit number such that none of the three digits are the same. Then the number is $100a + 10b + c$. Sum of all possible two-digit numbers:

$$(10a + b) + (10a + c) + (10b + a) + (10b + c) + (10c + a) + (10c + b) = 22a + 22b + 22c = 22(a + b + c)$$

Thus dividing that result by the sum of the three digits: $a + b + c$ will yield a result of 22.

SUMMARY OF RESULTS BY SCHOOL – CONTEST # 1

In the following table, the column labeled GR represents the grades of participation by each school; the TTS column is the TEAM SCORE for contest #1, the 6TS, 7TS, 8TS, and 9TS columns represent the TEAM SCORE for each grade for Contest #1.

GR	ST	CITY	SCHOOL	TTS	6TS	7TS	8TS	9TS
789	AL	Mountain Brook	Mountain Brook JH					
78	AZ	Chandler	Willis JH	71		67	61	
78	AZ	Queen Creek	Sossaman MS	32		6	26	
78	AZ	Queen Creek	Payne JHS	65		64	54	
9	CA	Hillsborough	Crystal Springs Uplan					
789	CA	Los Altos	Egan					
9	CA	La Jolla	Country Day Sch					72
678	CA	La Jolla	Country Day Sch	80	68	70	68	
789	CA	Los Angeles	Berkeley Hall					
78	CA	Los Angeles	Harvard-Westlake	76		55	49	
678	CA	Menlo Park	La Entrada MS	59	5	32	32	
678	CA	Oakland	Head-Royce					
678	CA	Palos Verdes Estat	Intermediate	88	81	79	82	
678	CA	Sacramento	Brookfield					
6789	CA	San Francisco	Xian Yun Acad of Arts	31	9	5	10	12
678	CA	South Pasadena	South Pasadena MS	89	82	90	83	
678	CT	Wolcott	Tyrrell MS	64	60	49	63	
678	DC	Washington	St Albans School	80	63	73	75	
89	DE	Wilmington	Tower Hill School	79			69	41
678	FL	Miami	Palmer Trinity	72	51	58	56	
678	FL	North Miami	Holy Cross Lutheran	36	22	24	6	
678	FL	Tallahassee	Community Christian	61	42	41	47	
678	FL	Tallahassee	Deer Lake	91	50	86	79	
678	FL	Tallahassee	Fairview MS	90	94	40	79	
678	FL	Tallahassee	Montford MS	69	46	10	28	
678	FL	Tampa	Franklin Boys Prep					
678	FL	Vero Beach	St. Edward's					
678	FL	Winter Park	Trinity Prep					
78	HI	Kapolei	Kapolei MS	53		48	45	
78	IA	Coralville	Northwest JH'S	91		76	91	
789	IA	Madrid	Madrid Jr/Sr	19		14	6	3
78	IA	Neola	Tri-Center	30		18	26	
	IL	Edwardsville	Liberty MS					
678	IL	Edwardsvile	Lincoln MS					
78	IL	Libertyville	Highland MS	95		66	69	
678	IN	Terre Haute	Honey Creek MS	87	80	84	76	
678	IN	Wabash	Northfield Jr/Sr					
67	KS	Lenexa	Trailridge MS					
78	KS	Shawnee Mission	Indian Woods MS	83		43	47	
678	KS	Shawnee Mission	Hocker Grove MS					
67	KY	Edgewood	St Pius X	44	18	34		
678	MA	Andover	Pike School	69	17	31	26	
	MA	Needham	St. Sebastian's					
678	MA	West Bridgewater	West Bridgewater MS					
678	MD	Silver Spring	Takoma Park MS	96	93	94	96	
678	MI	Bloomfield Hills	East Hills MS	69	61	58	60	
67	MI	Novi	Novi Meadows	84	81	74		
678	MI	Quincy	Quincy MS					
678	MN	Willmar	Willmar MS	69	57	58	54	
678	MO	Chesterfield	Parkway Central M	80	83	77	59	
678	MO	Independence	Bingham MS					
678	MO	Kansas City	The Barstow School					
678	MO	St. Louis	Visitation Academy	35	12	8	15	

678	MO	St. Peters	Fort Zumwalt South	50	16	5	60	
6789	MS	Jackson	Jackson Prep	74	48	51	68	75
6789	NC	Winston Salem	Summit School	71	63	53	63	55
78	NE	Firth	Norris MS	58		49	52	
9	NE	Lincoln	East					79
678	NE	Lincoln	Lux MS	79	67	72	67	
678	NE	Lincoln	Mickle MS	89	52	26	31	
678	NE	Omaha	Brownell Talloot	71	42	56	47	
678	NE	Omaha	St. Margaret Mary	47	7	27	30	
678	NE	Omaha	Christ the King	58	44	42	39	
78	NE	Papillion	Liberty MS					
78	NE	Papillion	Papillion MS	64		51	75	
678	NJ	Brick	Lake Riviera MS	61	59	61	46	
78	NJ	Brick	Veterans Memorial					
6789	NJ	Hamilton	Crockett MS	74	51	55	70	54
678	NJ	Hamilton Square	St. Gregory the Great	68	45	48	54	
78	NJ	Marlboro	Marlboro MS	88		81	75	
678	NJ	Middletown	Thompson MS	55	52	42	16	
78	NJ	Morganville	Marlboro Memorial	82		74	64	
78	NJ	Tinton Falls	Ranney School	34		15	41	
678	NJ	Wycoff	Bergen County Acad					
789	NY	Floral Park	Floral Park Memorial	51		9	22	45
9	NY	Floral Park	Sewanhaka					9
78	NY	Garden City	Garden City MS	35		41	3	
678	NY	Long Island City	The 30th Avenue Sch	88	86	87	80	
789	NY	New Hartford	Perry JHS	68		54	56	53
678	NY	New York	PS334 Anderson Sch	85	70	50	26	
67	NY	Roslyn Heights	Willets Road Sch	71	40	61		
678	OH	Ashville	Teays Valley East					
678	OH	Canal Winchester	Canal Winchester MS	71	75	59	47	
678	OH	Cincinnati	Seven Hills MS	78	61	62	71	
678	OH	Commercial Pt	Teays Valley West	64	52	53	63	
678	OH	Williamsport	Westfall MS	47	53	35	29	
678	OK	Tulsa	University Sch	68	51	45	38	
	OR	Robert Gray MS	Portland					
9	PA	Malvern	Great Valley HS					29
678	SC	Columbia	Dent MS					
678	TN	Nashville	Holy Rosary Acad	61	43	44	48	
678	TX	Addison	Greenhill Sch	63	62	14	28	
678	TX	Arlington	Oakridge Sch	65	55	49	57	
89	TX	Bedord	Bedford JH	9			0	9
789	UT	Highland	Mountain Ridge JHS	80		61	67	64