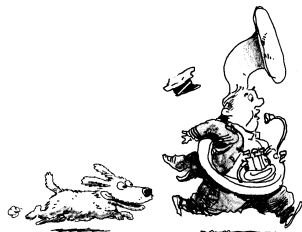
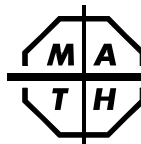


26. Sprinkles the dog likes to chase marching bands. When he does, he runs at 18 km per hour, which is the same as running at ? m per second.  
A) 5    B) 6    C) 10    D) 18
27. If the sum of 2 integers is 25, the product of the integers could not be  
A) -150    B) -30    C) 100    D) 154
28. How many of the first 1000 positive integers are multiples of both 4 and 5 but not of 6?  
A) 34    B) 42    C) 50    D) 58
29.  $\frac{3}{5} : 6 = 8 : \underline{?}$   
A)  $\frac{20}{9}$     B)  $\frac{9}{5}$     C) 24    D) 80
30. If the average of three positive integers is 5, the greatest possible value of the sum of the squares of the three integers is  
A) 107    B) 149    C) 171    D) 197
31. After a long walk yesterday, Cody wants to go 50% farther today in half as much time. What percent faster will she have to walk today than she did yesterday to meet her goal?  
A) 200%    B) 300%    C) 400%    D) 500%
32. What is the greatest prime factor of  $9^{18} - 3^{32}$ ?  
A) 5    B) 17    C) 19    D) 31
33. How many factors of  $3 \times 6 \times 9 \times 12 \times 15 \times 18$  are greater than 1 and are the square of an integer?  
A) 15    B) 14    C) 7    D) 6
34. Each time Bette fills out a form, she marks *just one* box: A, B, or C. If she checks boxes at random, the probability that in filling out 3 such forms she will mark one each of A, B, and C is  
A)  $\frac{1}{4}$     B)  $\frac{1}{3}$     C)  $\frac{2}{9}$     D)  $\frac{3}{10}$
35. In the sequence 105, 107, 112, 114, . . . , every number besides 105 and 107 is 7 greater than an earlier number. Which of the following may appear in this sequence?  
A) 1296    B) 1648    C) 2137    D) 2818



The end of the contest 8



## Sample 8th Grade Contest

Tuesday, February 26 (alternate date: February 19), 2013

# 8

### Instructions

- **Time** Do *not* open this booklet until told by your teacher to begin. You might be *unable* to finish all 35 questions in the 30 minutes allowed.
- **Scores** Remember that *this is a contest, not a test*—there is no “passing” or “failing” score. Few students score 28 points (80% correct). Students with 14 points, *should be commended!* High-scoring students may be invited to our “Math Camp,” held last August at Stanford University.
- **Results Posted Online** Scores of high-scoring schools, both regional and overall, will be posted at [www.mathleague.com](http://www.mathleague.com) no later than April 15.
- **Format, Point Value, & Eligibility** Every answer is an A, B, C, or D. Write answers in the *Answers* column. A correct answer is worth 1 point. Unanswered questions get no credit. You **may** use a calculator. You’re eligible for this contest only if you are in grade 8 or below and only if you don’t also take this year’s Annual 6th or Annual 7th Grade Contest.

### Please Print (To the student: You must complete all items below)

Last Name \_\_\_\_\_ First Name \_\_\_\_\_  
 School \_\_\_\_\_ Teacher \_\_\_\_\_ Grade Level \_\_\_\_\_  
 Time at Start of Contest \_\_\_\_\_ Today’s Date \_\_\_\_\_

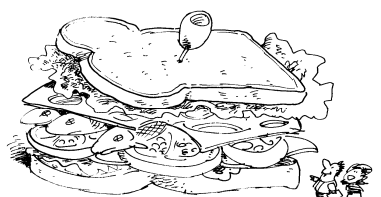
### Do Not Write In The Space Below

#### To the Teacher:

Please enter the score at the right before you return this paper to the student. *Papers with scores of 30 or higher must be held until June 1.* Student’s Score: \_\_\_\_\_

Eighteen books of past contests, *Grades 4, 5, & 6 (Vols. 1, 2, 3, 4, 5, 6)*, *Grades 7 & 8 (Vols. 1, 2, 3, 4, 5, 6)*, and *High School (Vols. 1, 2, 3, 4, 5, 6)*, are available, for \$12.95 per volume, from Math League Press, P.O. Box 17, Tenafly, NJ 07670-0017.

1. $(1 + 4 + 1 + 4) \times \underline{\quad} = 14140$ A) 10      B) 1010      C) 1414      D) 10000	1.
2. The number of fish in a giant sandwich is divisible by 2, 3, 4, and 5. There could be <u>?</u> fish. A) 2345      B) 4567 C) 5550      D) 6660	2.
3. The average of 25 and <u>?</u> is 2013. A) 994      B) 1019      C) 1988      D) 4001	3.
4. Bob rides his bicycle at 40 km per hour. How far will Bob ride in 3 minutes? A) 1 km      B) 2 km      C) 3 km      D) 4 km	4.
5. I am waiting in line with 10 people in front of me, including my brother. My brother has 10 people behind him in line, including me. If my brother is right in front of me, how many people are in line? A) 11      B) 19      C) 20      D) 21	5.
6. Each of my 60 books has either a hard cover or a soft cover. If I have 4 times as many hard covers as soft covers, I have <u>?</u> hard covers. A) 48      B) 35      C) 15      D) 12	6.
7. The largest odd factor of 111 is A) 3      B) 37      C) 109      D) 111	7.
8. My coin jar has 100 pennies, 200 nickels, 300 dimes, and 400 quarters in it. The coins have a total value of A) \$91      B) \$121      C) \$141      D) \$161	8.
9. The hundreds digit of the product $123456789 \times 234567890$ is A) 0      B) 1      C) 2      D) 3	9.
10. Ben finds a pair of eyes under 40% of the rocks he checks. If he looks under 400 rocks, he will find <u>?</u> eyes. A) 100      B) 160      C) 200      D) 320	10.
11. $12 \times \frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} \times \frac{1}{6} =$ A) $\frac{1}{144}$ B) $\frac{1}{12}$ C) 1      D) 12	11.
12. If the measures of the angles of triangle $T$ are in a 1:2:3 ratio, what kind of triangle is $T$ ? A) acute      B) obtuse      C) right      D) isosceles	12.



13. Of the following, which is greatest? A) $9 + 8 \times 6 - 4 \div 2$ B) $(9 + 8) \times 6 - 4 \div 2$ C) $9 + 8 \times (6 - 4) \div 2$ D) $(9 + 8) \times (6 - 4) \div 2$	13.
14. Coal miner Axel found diamonds! If the number of diamonds Axel found was the least common multiple of 18, 28, and 38, he found <u>?</u> diamonds. A) 2      B) 84      C) 4788      D) 19152	14.
15. 7 hundredths + 7 thousandths = 7 tenths - <u>?</u> A) 0.623      B) 0.777      C) 0.784      D) 0.854	15.
16. $2^2 \times 2^2 \times 2^2 + 2^2 \times 2^2 + 2^2 = 2^2 \times \underline{\quad}$ A) 16      B) 21      C) 32      D) 33	16.
17. If I multiply the number of math contests I have taken in my life by 6 and then add 5, the resulting number <i>cannot</i> be divisible by A) 5      B) 7      C) 9      D) 11	17.
18. An evil witch casts a spell to put a princess to sleep for 10000 hours. If the princess falls asleep at 6:00 P.M., she will wake at A) 10:00 A.M.      B) 4:00 P.M.      C) 8:00 P.M.      D) 11:00 P.M.	18.
19. Of the rocks in a box, 1/3 are igneous, 60 are metamorphic, and the remaining 40% are sedimentary. How many rocks are in the box? A) 160      B) 180      C) 200      D) 225	19.
20. The sum of 4 consecutive even integers is 148. The sum of the digits of the smallest of the 4 integers is A) 6      B) 7      C) 9      D) 12	20.
21. Max has 9 pairs of glasses for every 2 surfboards he has. If he has 108 pairs of glasses, he has <u>?</u> surfboards. A) 12      B) 24      C) 48      D) 486	21.
22. $180 + 150\%$ of 180 = A) 270      B) 330      C) 450      D) 630	22.
23. The perimeter of a triangle is 50. The length of the longest side of the triangle could be A) 15      B) 20      C) 25      D) 29	23.
24. If $x \square y$ is defined as $(x + y)^2 - 2xy$ , then $5 \square 7 =$ A) 12      B) 24      C) 35      D) 74	24.
25. A square of side-length $4\pi$ has the same perimeter as a circle of diameter A) 2      B) 4      C) 8      D) 16	25.

