

23. A die is rolled 3 times. The 1st number rolled is the hundreds digits of a 3-digit number, the 2nd one rolled is the tens digit, and the 3rd one rolled is the ones digit. How many different 3-digit numbers formed this way have at least two identical digits?		23.
24. A number greater than 2019 is the sum of at least 2 2-digit numbers.	A) 96 B) 120 C) 166 D) 216	24.
25. A teacher divides her students into groups so there are at most 2 more boys than girls in each group. If there are 7 more boys than girls, what is the lowest number of groups the teacher can create?	A) 3 B) 4 C) 6 D) 7	25.
26. Of the following numbers, which has an odd number of even factors?	A) 4 B) 80 C) 100 D) 128	26.
27. In the hurdle competition, Kaz finished 12 places ahead of last place and 4 places behind the top half of all competitors. How many competitors placed ahead of Kaz?		27.
28. What is the average of all factors of the product $2 \times 3 \times 5$?	A) 18 B) 19 C) 20 D) 21	28.
29. I counted by ones, in increasing order, starting with a number greater than 1. If the average of the first 99 numbers I counted was 100, what is the sum of the digits of my first number?	A) 6 B) 7 C) 8 D) 9	29.
30. If my favorite positive number multiplied by itself has the same value as the sum when this favorite number is written 24 times and the numbers are added together, what is half the value of that sum?	A) 5 B) 6 C) 7 D) 8	30.
	A) 48 B) 144 C) 240 D) 288	

The end of the contest  15

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Sample 5th Grade Contest

Spring, 2019

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Instructions

- **Time** Do not open this booklet until you are told by your teacher to begin. You will have only 30 minutes working time for this contest. You might be *unable* to finish all 30 questions in the time allowed.
- **Scores** Please remember that *this is a contest, and not a test*—there is no “passing” or “failing” score. Few students score as high as 24 points (80% correct). Students with half that, 12 points, *should be commended!*
- **Format and Point Value** This is a multiple-choice contest. Each answer will be one of the capital letters A, B, C, or D. Write each answer in the *Answer Column* to the right of each question. We suggest (but do not require) that you use a pencil. Each question you answer correctly is worth 1 point. Unanswered questions receive no credit. You **may** use a calculator *unless* your school does *not* allow you to use one.

Please Print

Last Name _____ First Name _____
School _____ Teacher _____ Grade Level _____

Do Not Write In The Space Below

To the Teacher:

Please enter the student's score at the right before you return this paper to the student.

Student's Score: _____

The school's top scorer will receive the book *Math Contests—Grades 4,5,6 (Vol. 4)*. Other high scorers will receive Certificates of Merit. In any one school year, no student may win both a book and a certificate. The book and certificates were in the original contest package.

If needed, duplicate book awards may be ordered as described below.

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

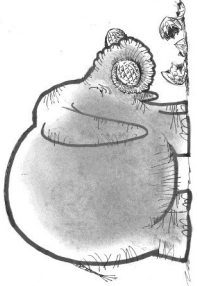
2018-2019 5TH GRADE CONTEST SOLUTIONS

Answers

1. $700 + 80 + 9 = 700 + (80 + 9) = 700 + 89$.	A) 7 B) 70 C) 700 D) 780	1. C
2. Of every 6 animals I counted, 5 were sheep and 1 was a cow. Of 1800 animals, 1500 were sheep and 300 were cows.	A) 400 B) 600 C) 1200 D) 1500	2. C
3. The product of 2018 and 2019 has 7 digits, Their sum has 4 digits, 3 digits less.	A) 3 B) 4 C) 5 D) 7	3. A
4. $250 \times 100 = 100 \times 250 = (2 \times 50) \times (25 \times 10)$.	A) 10 B) 20 C) 25 D) 50	4. C
5. Adding 20 to my age doubles it. I must now be 20. I was 18 2 years ago.	A) 8 B) 18 C) 22 D) 38	5. B
6. $2019 - (19 \times 1 + 19 \times 5) = (2019 - 19) - (19 \times 5)$.	A) 0 B) 5 C) 6 D) 7	6. B
7. A weed grew 1 cm every 6 days. It grew 20 cm in 6×20 days.	A) 20 B) 40 C) 60 D) 120	7. A
8. $10 \times 10 \times 10 = 1000 = 100 \times 100 \div 1000$.	A) 10 B) $10 \times 10 \times 10$ C) $90 \times 90 \times 90$ D) $100 \times 100 \times 100$	8. B
9. A triangle with even side-lengths could <i>not</i> have an odd perimeter.	A) 9 B) 16 C) 36 D) 64	9. A
10. The whole numbers less than 25 that are 1 less than a prime are 1, 2, 4, 6, 10, 12, 16, 18, and 22. The multiples of 4 are 4, 12, and 16.	A) 0 B) 1 C) 2 D) 3	10. D
11. Since $8760 \div 60 = 146$, my balloon rose 146×10 m in 8760 seconds.	A) 146 m B) 365 m C) 1046 m D) 1460 m	11. D
12. If May 1st was a Tuesday, then the 7th, 14th, 21st, and 28th would be Mondays.	A) Sunday B) Monday C) Tuesday D) Saturday	12. C

2018-2019 5TH GRADE CONTEST SOLUTIONS

Answers

13. My hat size is 1.5 times my shoe size. If my hat size is 18 more than my shoe size, then half my shoe size is 18. Their sizes are 36 and 54.	A) 36 B) 54 C) 90 D) 108	13.  C
14. One summand must be 2. The least such sum is $2 + 101 = 103$.	A) 101 B) 103 C) 105 D) 107	14. B
15. I ran each of the first two km twice as fast as I ran the third km. If I ran the entire race in 36 minutes, it took me as long to run the 3rd km as the first two combined. So I took 18 minutes for the 3rd km.	A) 12 minutes B) 18 minutes C) 24 minutes D) 27 minutes	15. B
16. My favorite number is 2019. The sum of the smallest factor and the greatest factor of my favorite number is $1 + 2019 = 2020$.	A) 674 B) 676 C) 2020 D) 2022	16. C
17. Each day, including weekend days, I play video games for half as much time as I spend doing homework that day. If I spent a total of 182 minutes playing video games last week, I spent $182 \div 7 = 26$ minutes playing games each day and 52 minutes doing homework.	A) 16 minutes B) 26 minutes C) 36 minutes D) 52 minutes	17. D
18. If each number has a ones digit of 9, the product is $9 \times 9 \times 9 \times 9 = 6561$.	A) 9 B) 105 C) 945 D) 6561	18. D
19. For my average to decrease 5 points, my third game score was 3×5 points lower than the average of my first two game scores.	A) 5 B) 10 C) 15 D) 25	19. C
20. If Elle shelled 1 nut the 1st day, she shelled $1+2+4+8 = 15$ nuts in 4 days. She actually shelled 24 times as many, so she shelled 24 the 1st day and 192 the 4th day.	A) 90 B) 168 C) 192 D) 270	20.  B
21. The remainders for each choice in order are 1, 1, 10, and 1.	A) $10 \div 9$ B) $100 \div 99$ C) $1000 \div 99$ D) $10000 \div 99$	21. C
22. A certain number has exactly 3 different factors. If the second greatest factor is 7, the number is 49 and the sum of its digits is 13.	A) 5 B) 7 C) 12 D) 13	22. D