

23. Divide the answer choices by 6 and by 5. Find the choice that leaves a remainder of 2 when divided by 6 and a remainder of 3 when divided by 5. Since 38 is the only choice that satisfies these conditions, choice D is correct.

23.
D

- A) 13 B) 14 C) 26 D) 38

24. The 3 castles have $8 \times 3 = 24$ beds. That leaves $48 - 24 = 24$ beds for the homes. Since each home has 2 beds, there are $24 \div 2 = 12$ homes.

24.
A

- A) 12 B) 16 C) 24 D) 48

25. There are 9 possible hundreds digits. There are then 9 possible tens digits left. This leaves 8 ones digits for a total of $9 \times 9 \times 8$ numbers.

25.
A

- A) 648 B) 720 C) 729 D) 900



26. The 3 prime numbers between 40 and 50 are 41, 43, and 47.

26.
C

- A) 20 and 30 B) 30 and 40 C) 40 and 50 D) 50 and 60

27. Simona has only dimes and quarters. She must have two quarters and five dimes. She has a total of 7 coins.

27.
B

- A) 4 B) 7 C) 9 D) 10

28. Briana can solve 6 cubes in 240 seconds or 1 in 40 seconds. Avima can solve 5 cubes in 360 seconds or 1 in 72 seconds. Briana can solve 1 cube 32 seconds more quickly than Avima can.

28.
D

- A) 24 B) 27 C) 30 D) 32



29. 2018 is the product of the primes 1009 and 2.

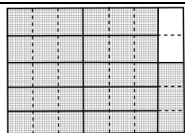
29.
A

- A) 2018 B) 2020 C) 3018 D) 3020

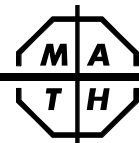
30. As shown, eleven 1-by-3 rectangles can fit in a 5-by-7 rectangle.

30.
C

- A) 9 B) 10 C) 11 D) 12



The end of the contest 4



Information & Solutions

Spring, 2019

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Directions for Grading

- **Date** You may give this contest any time after April 15. The *4th Grade Contest* is for use in your own school or district. We've enclosed a registration form for next year. Instructions for optionally submitting results are included on a separate sheet entitled "Using the Score Report Center."
- **Urgent questions?** Write to comments@mathleague.com, or call 1-201-568-6328 or 1-516-365-5656.
- **Scores** Remind students 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!*
- **Solutions** Detailed solutions appear in each question box, and letter answers are in the *Answers* columns on the right. You may copy this solution key and give a copy to every student who took this contest.
- **Awards** The original contest package contained 1 book award (and a bookplate you should affix to the book's inside front cover) for the 1st place student. We also enclosed 5 *Certificates of Merit*—1 for each runner-up, plus extras for ties.

Additional Book Awards & Additional Certificates If you want to give more than 1 book award, you may purchase additional books as described below. Do you need more Certificates of Merit? If so, send your name, school, and school mailing address to our mailer at: **Math Certificates, P.O. Box 17, Tenafly, NJ 07670**, and include a self-addressed, stamped envelope (**2 stamps required**) large enough to hold certificates

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.

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1. Choice C is an odd number since $2018 + 2019 = 4037$. A) 2018×2019 B) 2019×2020 C) $2018 + 2019$ D) $2019 + 2021$	1. C
2. Since $25 = 5 \times 5$, the whole number on his shirt could be 5 and the product would be 25. A) 24 B) 25 C) 26 D) 27	2. B
3. The product of any number of ones is 1. A) 1 B) 7 C) 49 D) 50	3. A
4. 4 dozen = $4 \times 12 = 48$. Each pair is 2 socks, so there are 24 pairs. A) 2 B) 24 C) 48 D) 96	4. B
5. The number of months in a year is 12; the number of days in a week is 7. When 12 is divided by 7, the remainder is 5. A) 0 B) 2 C) 5 D) 7	5. C
6. There are 5 months from November 1, 2018, until April 1, 2019: November, December, January, February, and March. A) 5 B) 6 C) 7 D) 8	6. A
7. $(20 - 18) + (20 - 18) + (20 - 18) = 2 + 2 + 2 = 6$. A) 2 B) 4 C) 6 D) 8	7. C
8. The ones digit of $12 \times 13 \times 14$ is the same as the ones digit of $2 \times 3 \times 4$. A) 2 B) 4 C) 6 D) 8	8. B
9. As shown below, choice D is greatest. A) $1 \times 2 \times 12 = 24$ B) $2 \times 3 \times 4 = 24$ C) $4 \times 2 \times 2 = 16$ D) $2 \times 4 \times 4 = 32$	9. D
10. Sandra uses two entire erasers for every 15 questions. She needs 12 erasers for 90 questions. That's one pack so far. Since there are 10 more questions, she needs one more pack. A) 2 B) 3 C) 4 D) 5	10. A
11. Since $100 \div 7 = 14R2$, the greatest such multiple of 7 is $7 \times 14 = 98$. A) 91 B) 93 C) 97 D) 98	11. D
12. Since $654 + 456 = 1110$, the digit 0 appears only once in the sum. A) 0 B) 1 C) 2 D) 3	12. A



13. December has 31 days on which Ella wears sweaters. Ella needs 7 different sweaters each week. After four weeks, a total of 28 days, she can donate 7 sweaters. Ella needs sweaters for the remaining 3 days, so she needs a total of $7 + 3 = 10$ sweaters. A) 7 B) 8 C) 10 D) 12	13. C
14. The tens digit may be 2, 4, 6, or 8, and the ones digit may be 0, 2, 4, 6, or 8. That's $4 \times 5 = 20$ such whole numbers. A) 16 B) 20 C) 25 D) 50	14. B
15. Noah scores $2 \times 7 = 14$ goals each week. Since $56 \div 14 = 4$, it will take Noah 4 weeks to score 56 goals. A) 3 B) 4 C) 5 D) 18	15. B
16. Chris ran each lap in 90 seconds. After running for 6 minutes = 360 seconds, he had run $360 \div 90 = 4$ laps. He had 6 laps left to run. A) 3 B) 4 C) 5 D) 6	16. D
17. The pairs are 41 and 59, 42 and 58, . . . , 48 and 52, and 49 and 51. There are 9 such pairs. A) 9 B) 10 C) 18 D) 20	17. A
18. $2 \times 4 \times 5 \times 25 = (2 \times 5) \times (4 \times 25) = 10 \times 100$. A) 6×125 B) 6×150 C) 8×150 D) 10×100	18. D
19. The sum must be divisible by 3. If one number is 2, the other 2 numbers could each be 5 since the sum of all 3 would be $2 + 5 + 5 = 12$. A) 3 B) 4 C) 5 D) 6	19. C
20. $\$2000 - \$2 + \$20 - 2\text{¢} = \$2018 - 2\text{¢} = \$2017.98$. A) \$1999.98 B) \$2017.80 C) \$2017.98 D) \$2020.20	20. C
21. Joey can have at most 4 large boxes since each large box contains 4 small boxes. If Joey has 4 large boxes, he has $4 \times 4 = 16$ small boxes, for a total of 20 boxes. A) 4 B) 8 C) 12 D) 16	21. D
22. Any number divisible by both 4 and 6 must be divisible by the l.c.m. of 4 and 6, 12. There are 8 multiples of 12 between 100 and 200. A) 6 B) 7 C) 8 D) 10	22. C

