26. Wilma's potion needs 3 ingredients. Her choices are newt, fly, beetle, snake, and snail. How many different combinations of 3 of these 5 choices are there?

A) 6 B) 8 C) 10 D) 60 — 26.

27. The sum of six consecutive integers *could* be

A) 81 B) 88 C) 92 D) 98 — 27.

28. 288 minutes = _?_ % of 1 day

A) 10 B) 15 C) 20 D) 40 — 28.

29. Two cousins visited Jane today. One cousin visits every 42 days. The other visits every 429 days. They will next visit on the same day in _?_ days.

A) 4296 B) 6006 C) 9009 D) 18018 — 29.

30. $3^{2013} - 3^{2012} =$

A) 3^1 B) 3^{2011} C) 2×3^{2012} D) 6^{1006} — 30.

31. The measure of the smaller angle formed by the hour and minute hands of a circular clock at 2:46 is

A) 84° B) 137° C) 167° D) 174° — 31.

32. The median of $\frac{1}{6}, \frac{2}{5}, \frac{3}{4}, \frac{4}{3}, \frac{5}{2}$, and $\frac{6}{1}$ is

A) 1 B) $\frac{669}{360}$ C) $\frac{7}{12}$ D) $\frac{25}{24}$ — 32.

33. Brad mixes seeds to attract birds. His Blue mix is 55% sunflower and 45% bluegrass. His Rye mix is 30% sunflower and 70% ryegrass. His Master mix combines some of each of the Blue and Rye mixes. If Master mix is 45% sunflower, how much of each kg of Master mix is Blue mix?

A) 350 g B) 400 g C) 600 g D) 650 g — 33.

34. If I multiply all whole numbers from 1 through 100, the largest power of 4 that is a factor of the product is

A) 4^{25} B) 4^{32} C) 4^{48} D) 4^{50} — 34.

35. Of my books, 85% are new and the rest are used. Some are biographies, 70% of which are new. What is the ratio of the fraction of new books that are biographies to the fraction of used books that are biographies?

A) 7:17 B) 14:17 C) 17:14 D) 17:7 — 35.

The end of the contest 7

Visit our Web site at http://www.mathleague.com

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M A T H

SEVENTH GRADE MATHEMATICS CONTEST

Math League Press, P.O. Box 17, Tenafly, New Jersey 07670-0017

Sample 7th Grade Contest

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

7

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* 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 7 or below and only if you don't also take this year's Annual 6th or Annual 8th 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:*** _____

1. Of the following numbers, which is closest to 10.98?
   A) 10.00 B) 10.90 C) 10.95 D) 11.00 — 1.

2. $\sqrt{4\times9\times16}$ =
   A) 9 B) 24 C) 29 D) 36 — 2.

3. Mr. Barry is angry. He has 4 grubs left after he tried to divide 256 grubs equally among his cubs. There could be _?_ cubs.
   A) 5 B) 6 C) 8 D) 11 — 3.

4. The tenths digit of _?_ is larger than its hundredths digit.
   A) 543.21 B) 231.23 C) 654.56 D) 642.46 — 4.

5. $3^2 + 3^2 + 3^2$ =
   A) 3^3 B) 3^6 C) 9^3 D) 9^6 — 5.

6. $3 \div \frac{1}{6} = 9 \div$ _?_
   A) $\frac{1}{18}$ B) $\frac{1}{12}$ C) $\frac{1}{2}$ D) $\frac{9}{2}$ — 6.

7. The greatest common factor of 2013 and _?_ is 11.
   A) 231 B) 365 C) 418 D) 542 — 7.

8. Three times a certain number is 36. One-third of that certain number is
   A) 4 B) 12 C) 36 D) 108 — 8.

9. If a case of eggs contains 12 dozen eggs, how many eggs are in two crates of 12 cases each?
   A) 48 B) 144 C) 288 D) 3456 — 9.

10. One hundred million divided by ten thousand equals
    A) 10 B) 100 C) 1000 D) 10 000 — 10.

11. Ashley the chimney sweep puts his hat down on a square the same size as the opening of a chimney. The circular brim touches each side of the square at a single point. The perimeter of the square is 4 m. What is the radius of the circular brim of Ashley's hat?
    A) 0.5 m B) 1 m C) 2 m D) 4 m — 11.

12. $\frac{1}{3}\times\frac{2}{4}\times\frac{3}{5}\times\frac{4}{6}\times\frac{5}{7}\times\frac{6}{8}\times\frac{7}{9}\times\frac{8}{10} = \frac{1}{10}\times$ _?_
    A) $\frac{3}{19}$ B) $\frac{2}{9}$ C) $\frac{1}{9}$ D) $\frac{2}{90}$ — 12.

13. 20 + 30 + 40 − (the average of 20, 30, and 40) =
    A) 0 B) 45 C) 60 D) 90 — 13.

14. Del loves sandwiches so much that 130 of his last 250 meals were sandwiches. What percent of those last 250 meals were *not* sandwiches?
    A) 40% B) 44% C) 48% D) 52% — 14.

15. The sum of the two least odd divisors of 120 is
    A) 4 B) 5 C) 8 D) 15 — 15.

16. I collect 20 seashells every 30 minutes, but I drop 3 shells every 2 hours. If I collect shells for 8 hours, I will end up with _?_ shells.
    A) 68 B) 136 C) 296 D) 308 — 16.

17. The number of nickels in \$3.00 plus the number of dimes in \$6.00 is half the number of quarters in
    A) \$12.00 B) \$15.00 C) \$30.00 D) \$60.00 — 17.

18. 0.05% of 10 000 equals
    A) 5 B) 50 C) 500 D) 5 000 — 18.

19. The sum of 13 consecutive integers is 13. The greatest of the integers is
    A) 6 B) 7 C) 9 D) 13 — 19.

20. Apples cost 65¢ each and oranges cost 85¢ each. If I spend \$8.80 on apples and oranges, how many pieces of fruit did I buy all together?
    A) 11 B) 12 C) 13 D) 14 — 20.

21. Dragon Doug reads a prime number of books each month. If each prime is different, which of the following *cannot* be the total number of books he reads in 3 months?
    A) 10 B) 12 C) 13 D) 15 — 21.

22. The number halfway between 45 674 567 and 67 896 789 is
    A) 55 443 322 B) 55 556 666
    C) 56 565 656 D) 56 785 678 — 22.

23. $\sqrt{49} - \sqrt{16}$ =
    A) $\sqrt{33}$ B) $\sqrt{25}$ C) $\sqrt{9}$ D) $\sqrt{3}$ — 23.

24. The greatest power of 3 that divides 2016^{2013} is
    A) 3^{2013} B) 3^{2015} C) 3^{4026} D) 3^{6039} — 24.

25. A new spa opens for the first time on Wednesday, March 2. If it is open only on Monday through Friday each week, its 21st day open will be
    A) March 22 B) March 23 C) March 30 D) March 31 — 25.