30. If a radius of the circle shown is 6, what is the area of the shaded region?

A) $36-12\pi$ B) $144-12\pi$ C) $36-36\pi$ D) $144-36\pi$ — 30.

31. Divide each of the 1999 numbers 1, 2, . . . , 1999 by 2. The average value of these 1999 quotients is
A) 498.5 B) 499 C) 499.5 D) 500 — 31.

32. If $a\triangle b$ means $b^a+(a\times b)$, then $3\triangle 4$ =
A) 76 B) 84 C) 88 D) 93 — 32.

33. In my piggy bank, 70% of the coins were dimes. Your piggy bank had three times as many coins as mine, and 75% of them were dimes. When the contents were combined, ? % of the coins were dimes.

A) 72.5 B) 73.25 C) 73.75 D) 74 — 33.

34. The least common multiple of 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 is
A) 3 628 800 B) 7560 C) 2520 D) 1260 — 34.

35. $1000^{1001} - 1000^{1000}$ =
A) 1000 B) 999^{1000} C) 1000×1001 D) 999×1000^{1000} — 35.

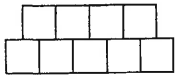
36. On my softball team, five of the player's numbers are primes. If the sum of these different primes is odd, this sum could be


A) 39 B) 35 C) 27 D) 25 — 36.

37. If the measures of the angles of a triangle are consecutive whole numbers, then the triangle must be
A) scalene B) obtuse
C) isosceles D) equilateral — 37.

38. If the square root of the perimeter of an equilateral triangle is 6, then the length of one side of this triangle is
A) 8 B) 9 C) 12 D) 16 — 38.

39. Of the following, which is divisible by 3?
A) $10^{200}+1$ B) $10^{200}+2$ C) $10^{200}+3$ D) $10^{200}+4$ — 39.

40. I need at least ? colors to paint each square so any squares that touch are colored differently.

A) 2 B) 3 C) 4 D) 5 — 40.

The end of the contest 8

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Solutions on Page 95 • Answers on Page 143

MATH
EIGHTH GRADE MATHEMATICS CONTEST
Math League Press, P.O. Box 17, Tenafly, New Jersey 07670-0017

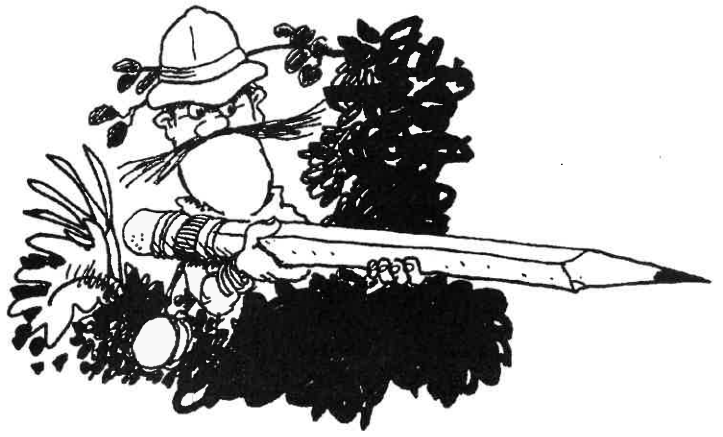
2006-2007 Annual 8th Grade Contest

Tuesday, February 20 or 27, 2007

8

Instructions

- **Time** You will have only *30 minutes* working time for this contest. You might be *unable* to finish all 40 questions in the time allowed.
- **Scores** Please remember that *this is a contest, not a test*—and there is no "passing" or "failing" score. Few students score as high as 30 points (75% correct). Students with half that, 15 points, *should be commended!*
- **Format and Point Value** This is a multiple-choice contest. Each answer is an A, B, C, or D. Write each answer in the *Answers* column to the right of each question. A correct answer is worth 1 point. Unanswered questions get no credit. You **may** use a calculator.



1. Of the following, which has the least value?
A) $\frac{2}{3}$ B) $\frac{3}{5}$ C) $\frac{4}{7}$ D) $\frac{5}{9}$ — 1.

2. I bought 27 fifty-cent stamps and got ? change from a $20 bill.
A) $18.65 B) $13.50 C) $10.35 D) $6.50 — 2.

3. $\frac{4}{5} \times \frac{3}{4} \times \frac{2}{3} \times \frac{1}{2} \times \frac{0}{1} =$
A) 1 B) $\frac{1}{5}$ C) 0 D) $-\frac{1}{5}$ — 3.

4. I first wore my headphones on July 1, a Friday. I last wore them on the last day of July, a
A) Saturday B) Sunday
C) Monday D) Tuesday — 4.

5. $(10 \times 0.1) \times (100 \times 0.01) \times (1000 \times 0.001) =$
A) 1 B) 0.1 C) 0.01 D) 0.001 — 5.

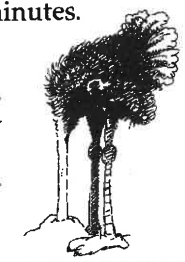
6. The sum of the 99 smallest positive integers and the 99 largest negative integers is
A) 0 B) 4950 C) 9900 D) 10 000 — 6.

7. I saved 2 dimes for every 3 nickels. I saved ? dimes and 90 nickels.
A) 15 B) 30 C) 60 D) 90 — 7.

8. $\frac{1}{2} + \frac{3}{4} = \frac{5}{?}$
A) 4 B) 6 C) 7 D) 12 — 8.

9. If $\angle O$ is obtuse and $\angle A$ is acute, $m\angle O - m\angle A$ can *never* equal
A) 90° B) 89° C) 1° D) 0° — 9.

10. I buried my head in the ground 120 times in 15 minutes. That's an average of ? times every 3 minutes.
A) 8 B) 12 C) 24 D) 30 — 10.



11. The reciprocal of 10 exceeds the reciprocal of 100 by
A) 0.9 B) 0.09 C) 0.10 D) 10 — 11.

12. $(100\,000 \div 100) \times (100\,000 \div 1000) =$
A) 100 000 B) 10 000 C) 10 D) 1 — 12.

13. (the greatest odd factor of 2007) − (the least odd factor of 2007) =
A) 666 B) 668 C) 2004 D) 2006 — 13.

14. 9 tenths + 9 hundredths = 9 thousandths + ?
A) 0.9901 B) 0.981 C) 0.99 D) −0.901 — 14.

15. The sum of a number and its reciprocal is *never*
A) 0 B) 2 C) positive D) negative — 15.

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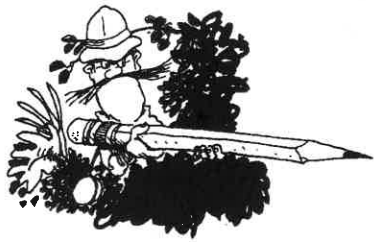
16. A number that is divisible by 12 and 21 must be divisible by
A) 28 B) 33 C) 36 D) 63 — 16.

17. The average of $\frac{1}{2006}$ and $\frac{1}{2007}$ is equal to half of their
A) sum B) product C) quotient D) difference — 17.

18. $2^2 + 2^2 \times 2^2 + 2^2 \times 2^2 = 2^2 \times$?
A) 5 B) 6 C) 9 D) 16 — 18.

19. Using my safari pencil, I found that the product of 120 and ? is the square of an integer.
A) 6 B) 10 C) 15 D) 30 — 19.



20. The sum 0.1 + 0.01 + 0.001 is equal to ? thousandths.
A) 1 B) 11 C) 100 D) 111 — 20.

21. Half of 0.5% is 5 times as large as
A) 5% B) 0.05% C) 0.005% D) 0.0005% — 21.

22. A candle 15 cm long, burning 0.5 cm/hr, takes ? to burn halfway.
A) 3.75 hours B) 7.5 hours C) 15 hours D) 22.5 hours — 22.

23. Each of my bricks is a 1 by 2 by 3 rectangular solid. The sum of the areas of all 6 faces of a brick is
A) 6 B) 11 C) 22 D) 36 — 23.

24. $\frac{1}{1 + \frac{1}{2}} = \frac{2}{?}$
A) 1 B) 2 C) 3 D) 4 — 24.

25. One-eighth of one-eighth = ? of one-sixteenth
A) one-sixteenth B) one-fourth C) one-third D) one-half — 25.

26. The length of each side of a regular ? is 20% of its perimeter.
A) pentagon B) hexagon C) octagon D) decagon — 26.

27. The number 30 is divisible by exactly ? different whole numbers.
A) 4 B) 6 C) 7 D) 8 — 27.

28. What is the sum of 9 consecutive integers whose average is 10?
A) 14 B) 19 C) 80 D) 90 — 28.

29. If 4 CDs on sale cost the same as 3 CDs at full price, and 1 CD at full price costs $16, then how much do 9 CDs on sale cost?
A) $144 B) $108 C) $72 D) $48 — 29.

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