

2nd Annual 2013 AMC 6

The 2nd Annual
American Mathematics Competitions

**American Mathematics Contest 6
(AMC 6)**

INSTRUCTIONS

1. DO NOT OPEN THIS BOOKLET UNTIL YOUR PROCTOR TELLS YOU.
2. This is a twenty-five question multiple choice test. For each question, only one answer choice is correct.
3. Mark your answer to each problem on the AMC 6 Answer Form with a #2 pencil. Check the blackened circles for accuracy and erase errors and stray marks completely. Only answers properly marked on the answer form will be graded.
4. There is no penalty for guessing. Your score is the number of correct answers.
5. Only scratch paper, graph paper, rulers, protractors, and erasers are allowed as aids. Calculators are NOT allowed. No problems on the test *require* the use of a calculator.
6. Figures are not necessarily drawn to scale.
7. Before beginning the test, your proctor will ask you to record your information on the answer form.
8. You will have 40 minutes to complete the test once your proctor tells you to begin.
9. When you finish the exam, *sign your name* in the space provided on the answer form.

A very special thanks to The Math League and the AMC 8 for contributing the problems!

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1. I had \$3 and I just spent 3 cents. How much money do I have left over?

- (A) \$2.70 (B) \$2.93 (C) \$2.97 (D) \$3.03

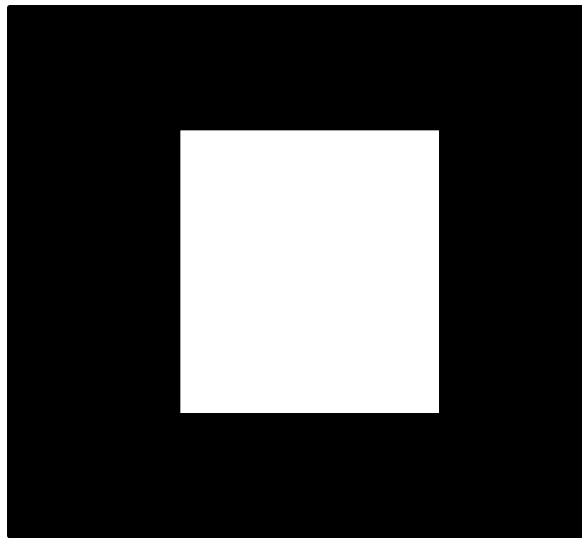
2. I own 1 Minifish and 2 Giantfish. Each Giantfish weighs 3 times as much as my Minifish. If my Minifish eats my two Giantfish, then how many times more weight will my Minifish have now than before?

- (A) 2 (B) 3 (C) 5 (D) 6

3. Which of the following do you obtain when 555 is rounded to the nearest ten?

- (A) 556 (B) 560 (C) 565 (D) 600

4. The shaded region shown below is bounded by squares with side lengths of 4 and 8. What is the sum of the inner and outer perimeters of the shaded region?



- (A) 48 (B) 36 (C) 32 (D) 16

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5. I have 25 coins, which are all pennies, nickels, dimes, or quarters. The total value of the coins is \$3.53. If I doubled the value of the coins, the total value would increase to \$4.33. How many quarters do I have?

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

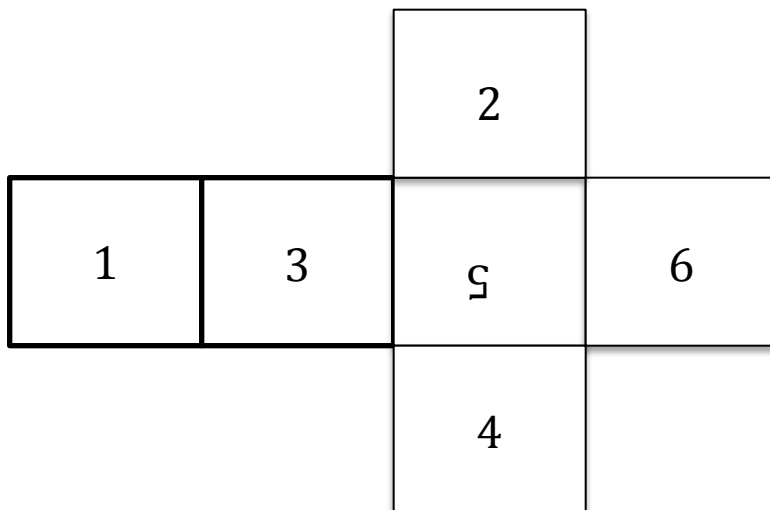
6. A board has alternating dark and light squares, just like a checkerboard, except that there are 9 squares on each side, instead of 8. At most how many of the squares on this 9x9 board are dark?

- (A) 38 (B) 39 (C) 40 (D) 41

7. In the sequence 11, 13, 15, ..., 95, 97, 99, there are 45 odd numbers. How many of them have an even tens digit?

- (A) 20 (B) 22 (C) 23 (D) 25

8. If the piece of cardboard shown is folded such that each little square is a different side of a cube, what number will be opposite 6?



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(A) 5 (B) 3 (C) 2 (D) 1

9. Pete has 11 books, which have a total of 2175 pages. If 5 of his books have 315 pages, how many pages are in total in Pete's other six books?

(A) 700 (B) 600 (C) 550 (D) 5000

10. Twice the number of pencils I have is 3 times the number of pencils you have. If I have 24 pencils, how many pencils do you have?

(A) 4 (B) 8 (C) 12 (D) 16

11. 25 people are standing in a line. Jo is 12th in line. How many people are there between Jo and the 25th person in line?

(A) 11 (B) 12 (C) 13 (D) 14

12. In the first 50 whole numbers, the ratio of primes to even numbers is

(A) 15:25 (B) 16:25 (C) 15:35 (D) 16:34

13. The sum of two numbers is 76. What is the largest possible value of their product?

(A) 5776 (B) 5700 (C) 1444 (D) 1443

14. What is the largest whole number solution to

$$\frac{x}{7} < \frac{7}{16}?$$

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(A) 2 (B) 3 (C) 4 (D) 5

15. If my pet runs at 300 cm/sec and your rocket flies 300m/sec, then how many times as faster does your rocket travel than my pet?

(A) 30,000 (B) 10,000 (C) 300 (D) 100

16. What is the average of 11, 12, 13, 14, 15, 16, 17, 18, and 19?

(A) 15 (B) 16 (C) 19 (D) 135

17. In the diagram below, how many triangles can you form by connecting any three points?



(A) 2 (B) 3 (C) 4 (D) 5

18. Each of 12 pizzas is divided into 8 slices, and everyone ate 2 slices. If 4 slices remained uneaten, then how many people ate pizza?

(A) 46 (B) 48 (C) 92 (D) 96

19. A plane left New York at 2 PM, and landed in Vancouver 6 hours later. If New York time is 3 hours ahead of Vancouver time, when did the plane land, in Vancouver time?

(A) 11 PM (B) 9 PM (C) 8 PM (D) 5 PM

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20. What is the sum of the mean, median, and mode of the set $2, 3, 0, 3, 1, 4, 0, 3$?

- (A) 7 (B) 7.5 (C) 8.5 (D) 9

21. Bridget bought a bag of apples at the grocery store. She gave half of the apples to Ann. Then she gave Cassie 3 apples, keeping 4 apples for herself. How many apples did Bridget buy?

- (A) 3 (B) 4 (C) 7 (D) 14

22. In a town of 351 adults, every adult owns a car, motorcycle, or both. If 331 adults own cars and 45 adults own motorcycles, how many of the car owners do not own a motorcycle?

- (A) 20 (B) 25 (C) 45 (D) 306

23. A circle has area 4π , which is inscribed in another circle with radius 4π . What is the difference in areas?

- (A) 0 (B) $16-4\pi$ (C) $16+4\pi$ (D) 32

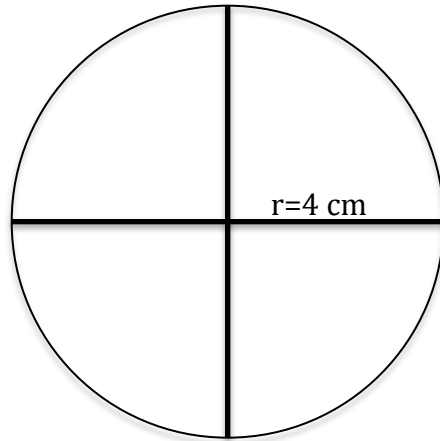
24. In the BIG N, a middle school football conference, each team plays every other team exactly once. If a total of 21 conference games were played during the 2012 season, how many teams were members of the BIG N conference?

- (A) 7 (B) 8 (C) 9 (D) 10

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25. The circle shown has its area split into four. What is the difference between the area and circumference of one of the quarter circles?

- (A) $8+4\pi$ (B) $4+8\pi$ (C) $8-4\pi$ (D) 8



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Citations for 2013 AMC 6

1. 2005-2006 4th Grade Math League Contest, #1
2. 2002-2003 4th Grade Math League Contest, #5
3. 2003-2004 4th Grade Math League Contest, #6
4. 2005-2006 4th Grade Math League Contest, #16
5. 2005-2006 4th Grade Math League Contest, #30
6. 2002-2003 5th Grade Math League Contest, #22
7. 2003-2004 5th Grade Math League Contest, #22
8. 2005-2006 5th Grade Math League Contest, #27
9. 2005-2006 5th Grade Math League Contest, #15
10. 2005-2006 5th Grade Math League Contest, #18
11. 2001-2002 6th Grade Math League Contest, #6
12. 2001-2002 6th Grade Math League Contest, #23
13. 2001-2002 6th Grade Math League Contest, #34
14. 2001-2002 6th Grade Math League Contest, #26
15. 2004-2005 6th Grade Math League Contest, #16
16. 2004-2005 6th Grade Math League Contest, #18
17. 2003-2004 6th Grade Math League Contest, #36
18. 2002-2003 6th Grade Math League Contest, #21
19. 2001-2002 6th Grade Math League Contest, #36
20. 2010 AMC 8 #4
21. 2009 AMC 8 #1
22. 2011 AMC 8 #6
23. I made this one up.
24. 2012 AMC 8 #14
25. I made this one up.

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Additionally, I own credit for "juicing up" the questions so that they sound more like AMC questions, and on arrangement of the answers (such turning the five answers from AMC 8 questions into four.)

Created by rafa2be