

Curriculum Inspirations

Inspiring students with rich content from the
MAA American Mathematics Competitions



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TRY THE FIRST TEN PROBLEMS



AMC 8

Are you ever-so-slightly curious about the American Mathematics Competitions?

What does one look like?

Are they hard?

What does it mean to be “good” at one?

Do I have to be good at it?

The point of the AMC is to show students, like you, that there is a lot of curious, interesting, and sometimes quirky mathematics to think about and play with. Sure, some people like the sense of “competition,” but there are many others (and I am one of those “others”) who aren’t drawn to that element at all. That’s okay!

So, here’s an invitation: Try these first 10 problems from the 2016 AMC 8 competition. Have fun with them. See how they affect your brain and what new ideas they lead you to think about and wonder about. Just try them! And perhaps try the next upcoming AMC8 competition too with the idea of just dwelling on the first 10 problems there and see which ones make you think and wonder.

Most people don’t realize that making progress on the first 10 problems is actually a significant achievement!

Just go for the first ten!

2016 AMC 8

The First Ten

Problem 1

The longest professional tennis match lasted a total of 11 hours and 5 minutes. How many minutes was that?

- (A) 605 (B) 655 (C) 665 (D) 1005 (E) 1105

Problem 2

In rectangle $ABCD$, $AB = 6$ and $AD = 8$. Point M is the midpoint of \overline{AD} . What is the area of $\triangle AMC$?

- (A) 12 (B) 15 (C) 18 (D) 20 (E) 24

Problem 3

Four students take an exam. Three of their scores are 70, 80, and 90. If the average of their four scores is 70, then what is the remaining score?

- (A) 40 (B) 50 (C) 55 (D) 60 (E) 70

Problem 4

When Cheenu was a boy he could run 15 miles in 3 hours and 30 minutes. As an old man he can now walk 10 miles in 4 hours. How many minutes longer does it take for him to travel a mile now compared to when he was a boy?

- (A) 6 (B) 10 (C) 15 (D) 18 (E) 30

Problem 5

The number N is a two-digit number.

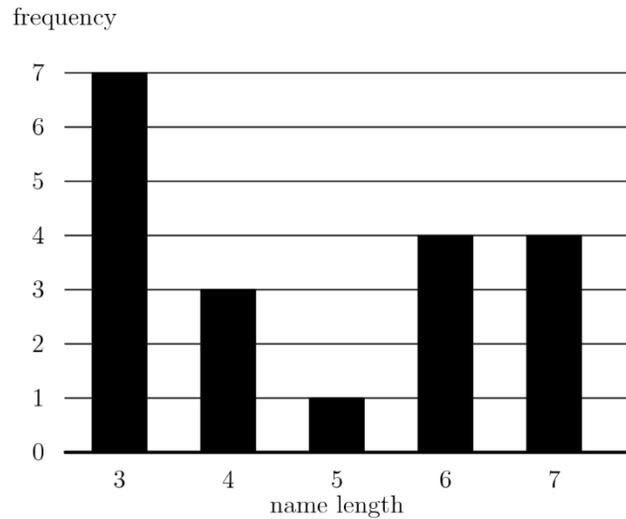
- When N is divided by 9, the remainder is 1.
- When N is divided by 10, the remainder is 3.

What is the remainder when N is divided by 11?

- (A) 0 (B) 2 (C) 4 (D) 5 (E) 7

Problem 6

The following bar graph represents the length (in letters) of the names of 19 people. What is the median length of these names?



- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

Problem 7

Which of the following numbers is not a perfect square?

- (A) 1^{2016} (B) 2^{2017} (C) 3^{2018} (D) 4^{2019} (E) 5^{2020}

Problem 8

Find the value of the expression $100 - 98 + 96 - 94 + 92 - 90 + \dots + 8 - 6 + 4 - 2$.

- (A) 20 (B) 40 (C) 50 (D) 80 (E) 100

Problem 9

What is the sum of the distinct prime integer divisors of 2016?

- (A) 9 (B) 12 (C) 16 (D) 49 (E) 63

Problem 10

Suppose that $a * b$ means $3a - b$. What is the value of x if $2 * (5 * x) = 1$?

- (A) $\frac{1}{10}$ (B) 2 (C) $\frac{10}{3}$ (D) 10 (E) 14

EXTRA QUESTION

Which of these 10 questions was intriguing or interesting to you?
Which one “sticks” in your brain the most?

Discuss this question with your classmates and your teacher.

Are there different ways to answer it? (How do your colleagues think about it?)
Can you, yourself, find more than one way to approach it?

Could you design a similar question for your classmates to try?

Could you change some of the numbers or ideas in the question and make up a brand new idea to explore? Where can this question lead you?

And so you have them

Answers: 1.(C); 2.(A); 3.(A); 4.(B); 5.(E); 6.(B); 7.(B); 8.(C); 9.(B); 10.(D).

Curriculum Inspirations is brought to you by the Mathematical Association of America and the MAA American Mathematics Competitions.