

Questions: Word Problem

Jack and Jill are going swimming at a pool that is one mile from their house. They leave home simultaneously. Jill rides her bicycle to the pool at a constant speed of 10 miles per hour. Jack walks to the pool at a constant speed of 4 miles per hour. How many minutes before Jack does Jill arrive?

- (A) 5 (B) 6 (C) 8 (D) 9 (E) 10

AMC 8 2015, Problem 3

Gilda has a bag of marbles. She gives 20% of them to her friend Pedro. Then Gilda gives 10% of what is left to another friend, Ebony. Finally, Gilda gives 25% of what is now left in the bag to her brother Jimmy. What percentage of her original bag of marbles does Gilda have left for herself?

- (A) 20 (B) $33\frac{1}{3}$ (C) 38 (D) 45 (E) 54

AMC 8 2019, Problem 8

Karl's car uses a gallon of gas every 35 miles, and his gas tank holds 14 gallons when it is full. One day, Karl started with a full tank of gas, drove 350 miles, bought 8 gallons of gas, and continued driving to his destination. When he arrived, his gas tank was half full. How many miles did Karl drive that day?

- (A) 525 (B) 560 (C) 595 (D) 665 (E) 735

AMC 8 2016, Problem 14

Starting with some gold coins and some empty treasure chests, I tried to put 9 gold coins in each treasure chest, but that left 2 treasure chests empty. So instead I put 6 gold coins in each treasure chest, but then I had 3 gold coins left over. How many gold coins did I have?

- (A) 9 (B) 27 (C) 45 (D) 63 (E) 81

AMC 8 2017, Problem 17

In an All-Area track meet, 216 sprinters enter a 100-meter dash competition. The track has 6 lanes, so only 6 sprinters can compete at a time. At the end of each race, the five non-winners are eliminated, and the winner will compete again in a later race. How many races are needed to determine the champion sprinter?

- (A) 36 (B) 42 (C) 43 (D) 60 (E) 72

AMC 8 2016, Problem 18

In a tournament there are six teams that play each other twice. A team earns 3 points for a win, 1 point for a draw, and 0 points for a loss. After all the games have been played it turns out that the top three teams earned the same number of total points. What is the greatest possible number of total points for each of the top three teams?

- (A) 22 (B) 23 (C) 24 (D) 26 (E) 30

AMC 8 2019, Problem 19

Questions: Number Theory

The 5-digit number $\underline{2} \underline{0} \underline{1} \underline{8} \underline{U}$ is divisible by 9. What is the remainder when this number is divided by 8?

- (A) 1 (B) 3 (C) 5 (D) 6 (E) 7

AMC 8 2018, Problem 7

Let Z be a 6-digit positive integer, such as 247247, whose first three digits are the same as its last three digits taken in the same order. Which of the following numbers must also be a factor of Z ?

- (A) 11 (B) 19 (C) 101 (D) 111 (E) 1111

AMC 8 2017, Problem 7

Malcolm wants to visit Isabella after school today and knows the street where she lives but doesn't know her house number. She tells him, "My house number has two digits, and exactly three of the following four statements about it are true."

- (1) It is prime.
- (2) It is even
- (3) It is divisible by 7.
- (4) One of its digits is 9.

This information allows Malcolm to determine Isabella's house number. What is its units digit?

- (A) 4 (B) 6 (C) 7 (D) 8 (E) 9

AMC 8 2017, Problem 8

Let N be the greatest five-digit number whose digits have a product of 120. What is the sum of the digits of N ?

- (A) 15 (B) 16 (C) 17 (D) 18 (E) 20

AMC 8 2018, Problem 14

The least common multiple of a and b is 12, and the least common multiple of b and c is 15. What is the least possible value of the least common multiple of a and c ?

- (A) 20 (B) 30 (C) 60 (D) 120 (E) 180

AMC 8 2016, Problem 20

The digits 1, 2, 3, 4, and 5 are each used once to write a five-digit number $PQRST$. The three-digit number PQR is divisible by 4, the three-digit number QRS is divisible by 5, and the three-digit number RST is divisible by 3. What is P ?

- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

AMC 8 2016, Problem 4