

AMC 8 Number Theory Questions - Year wise

Try these AMC 8 Number Theory Questions and check your knowledge!

AMC 8, 2023, Problem 20

Two integers are inserted into the list 3,3,8,11,28 to double its range. The mode and median remain unchanged. What is the maximum possible sum of two additional numbers?

- (A) 56
- (B) 57
- (C) 58
- (D) 60
- (E) 61

AMC 8, 2023, Problem 25

Fifteen integers $a_1, a_2, a_3, \dots, a_{15}$ are arranged in order on a number line. The integers are equally spaced and have the property that

$$1 \leq a_1 \leq 10, 13 \leq a_2 \leq 20, \text{ and } 241 \leq a_{15} \leq 250$$

What is the sum of digits of a_{14} ?

- (A) 8
- (B) 9
- (C) 10
- (D) 11
- (E) 12

AMC 8, 2022, Problem 13

How many positive integers can fill the blank in the sentence below?

"One positive integer is _____ more than twice another, and the sum of the two numbers is 28."

- (A) 6
- (B) 7
- (C) 8
- (D) 9
- (E) 10

AMC 8, 2020, Problem 1

Luka is making lemonade to sell at a school fundraiser. His recipe requires 4 times as much water as sugar and 3 times as much sugar as lemon juice. He uses 3 cups of lemon juice. How many cups of water does he need?

- (A) 6 (B) 8 (C) 12 (D) 18 (E) 24

AMC 8, 2020, Problem 2

Four friends do yardwork for their neighbors over the weekend, earning 15, 20, 25, and 40, respectively. They decide to split their earnings equally among themselves. In total how much will the friend who earned 40 give to the others?

- (A) 5
(B) 10
(C) 15
(D) 20
(E) 25

AMC 8, 2020, Problem 3

Carrie has a rectangular garden that measures 6 feet by 8 feet. She plants the entire garden with strawberry plants. Carrie is able to plant 4 strawberry plants per square foot, and she harvests an average of 10 strawberries per plant. How many strawberries can she expect to harvest?

- (A) 560
(B) 960
(C) 1120
(D) 1920
(E) 3840

AMC 8, 2020, Problem 5

Three fourths of a pitcher is filled with pineapple juice. The pitcher is emptied by pouring an equal amount of juice into each of 5 cups. What percent of the total capacity of the pitcher did each cup receive?

- (A) 5
(B) 10
(C) 15
(D) 20
(E) 25

AMC 8, 2020, Problem 7

How many integers between 2020 and 2400 have four distinct digits arranged in increasing order? (For example, 2347 is one integer.)

- (A) 9
(B) 10
(C) 15
(D) 21
(E) 28

AMC 8, 2020, Problem 13

Jamal has a drawer containing 6 green socks, 18 purple socks, and 12 orange socks. After adding more purple socks, Jamal noticed that there is now a $\frac{60}{100}$ chance that a sock randomly selected from the drawer is purple. How many purple socks did Jamal add?

- (A) 6
- (B) 9
- (C) 12
- (D) 18
- (E) 24

AMC 8, 2020, Problem 15

Suppose 15 of x equals 20 of y . What percentage of x is y ?

- (A) 5
- (B) 35
- (C) 75
- (D) $133\frac{1}{3}$
- (E) 300

AMC 8, 2020, Problem 17

How many factors of 2020 have more than 3 factors? (As an example, 12 has 6 factors, namely 1, 2, 3, 4, 6, and 12)

- (A) 6
- (B) 7
- (C) 8
- (D) 9
- (E) 10

AMC 8, 2020, Problem 19

A number is called *flippy* if its digits alternate between two distinct digits. For example, 2020 and 37373 are flippy, but 3883 and 123123 are not. How many five-digit flippy numbers are divisible by 15?

- (A) 3
- (B) 4
- (C) 5
- (D) 6
- (E) 8

AMC 8, 2019, Problem 1

Ike and Mike go into a sandwich shop with a total of \$30.00 to spend. Sandwiches cost \$4.50 each and soft drinks cost \$1.00 each. Ike and Mike plan to buy as many sandwiches as they can and use the remaining money to buy soft drinks. Counting both soft drinks and sandwiches, how many items will they buy?

- (A) 6



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

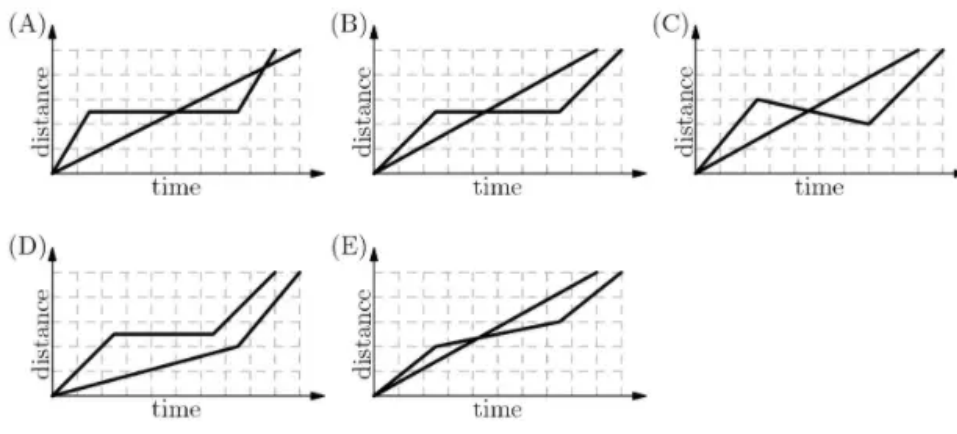
AMC 8, 2019, Problem 3

Which of the following is the correct order of the fractions $\frac{15}{11}$, $\frac{19}{15}$, and $\frac{17}{13}$, from least to greatest?

- (A) $\frac{15}{11} < \frac{17}{13} < \frac{19}{15}$ (B) $\frac{15}{11} < \frac{19}{15} < \frac{17}{13}$ (C) $\frac{17}{13} < \frac{19}{15} < \frac{15}{11}$ (D) $\frac{19}{15} < \frac{15}{11} < \frac{17}{13}$ (E) $\frac{19}{15} < \frac{17}{13} < \frac{15}{11}$

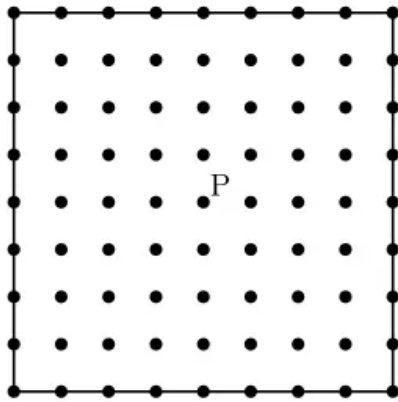
AMC 8, 2019, Problem 5

A tortoise challenges a hare to a race. The hare eagerly agrees and quickly runs ahead, leaving the slow-moving tortoise behind. Confident that he will win, the hare stops to take a nap. Meanwhile, the tortoise walks at a slow steady pace for the entire race. The hare awakes and runs to the finish line, only to find the tortoise already there. Which of the following graphs matches the description of the race, showing the distance d traveled by the two animals over time t from start to finish?



AMC 8, 2019, Problem 6

There are 81 grid points (uniformly spaced) in the square shown in the diagram below, including the points on the edges. Point P is in the center of the square. Given that point Q is randomly chosen among the other 80 points, what is the probability that the line PQ is a line of symmetry for the square?



- (A) $\frac{1}{5}$
- (B) $\frac{1}{4}$
- (C) $\frac{2}{5}$
- (D) $\frac{9}{20}$
- (E) $\frac{1}{2}$

AMC 8, 2019, Problem 7

Shauna takes five tests, each worth a maximum of 100 points. Her scores on the first three tests are 76, 94, and 87. In order to average 81 for all five tests, what is the lowest score she could earn on one of the other two tests?

- (A) 48
- (B) 52
- (C) 66
- (D) 70
- (E) 74

AMC 8, 2019, Problem 8

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 9

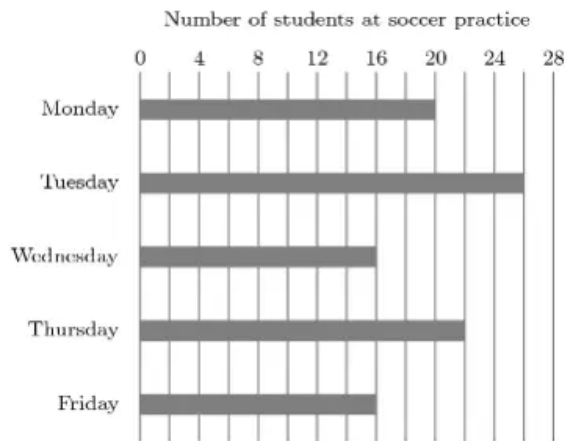
Alex and Felicia each have cats as pets. Alex buys cat food in cylindrical cans that are 6 cm in diameter and 12 cm high. Felicia buys cat food in cylindrical cans that are 12 cm in diameter and 6 cm high. What is the ratio of the volume one of Alex's cans to the volume one of Felicia's cans?

- (A) 1 : 4 (B) 1 : 2 (C) 1 : 1 (D) 2 : 1 (E) 4 : 1

AMC 8, 2019, Problem 10

The diagram shows the number of students at soccer practice each weekday during last week. After computing the mean and median values, Coach discovers that there were actually 21 participants on Wednesday. Which of the following

statements describes the change in the mean and median after the correction is made?



- (A) The mean increases by 1 and the median does not change.
- (B) The mean increases by 1 and the median increases by 1 .
- (C) The mean increases by 1 and the median increases by 5 .
- (D) The mean increases by 5 and the median increases by 1 .
- (E) The mean increases by 5 and the median increases by 5 .

AMC 8, 2019, Problem 11

The eighth grade class at Lincoln Middle School has 93 students. Each student takes a math class or a foreign language class or both. There are 70 eighth graders taking a math class, and there are 54 eighth graders taking a foreign language class. How many eighth graders take only a math class and not a foreign language class?

- (A) 16 (B) 23 (C) 31 (D) 39 (E) 70

AMC 8, 2019, Problem 13

A palindrome is a number that has the same value when read from left to right or from right to left. (For example 12321 is a palindrome.) Let N be the least three-digit integer which is not a palindrome but which is the sum of three distinct two-digit palindromes. What is the sum of the digits of N ?

- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

AMC 8, 2019, Problem 14

Isabella has 6 coupons that can be redeemed for free ice cream cones at Pete's Sweet Treats. In order to make the coupons last, she decides that she will redeem one every 10 days until she has used them all. She knows that Pete's is closed on Sundays, but as she circles the 6 dates on her calendar, she realizes that no circled date falls on a Sunday. On what day of the week does Isabella redeem her first coupon?

- (A) Monday (B) Tuesday (C) Wednesday (D) Thursday (E) Friday

AMC 8, 2019, Problem 15

On a beach 50 people are wearing sunglasses and 35 people are wearing caps. Some people are wearing and caps. If one of the people wearing a cap is selected at random, the probability that this person is also wearing sunglasses is $\frac{2}{5}$. If instead, someone wearing sunglasses is selected at random, what is the probability that this person is also wearing a cap?

- (A) $\frac{14}{85}$ (B) $\frac{7}{25}$ (C) $\frac{2}{5}$ (D) $\frac{4}{7}$ (E) $\frac{7}{10}$

AMC 8, 2019, Problem 16

Qiang drives 15 miles at an average speed of 30 miles per hour. How many additional miles will he have to drive at 55 miles per hour to average 50 miles per hour for the entire trip?

- (A) 45 (B) 62 (C) 90 (D) 110 (E) 135

AMC 8, 2019, Problem 17

What is the value of the product $\left(\frac{1 \cdot 3}{2 \cdot 2}\right) \left(\frac{2 \cdot 4}{3 \cdot 3}\right) \left(\frac{3 \cdot 5}{4 \cdot 4}\right) \cdots \left(\frac{97 \cdot 99}{98 \cdot 98}\right) \left(\frac{98 \cdot 100}{99 \cdot 99}\right)$?

- (A) $\frac{1}{2}$ (B) $\frac{50}{99}$ (C) $\frac{9800}{9801}$ (D) $\frac{100}{99}$ (E) 50

AMC 8, 2019, Problem 19

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 22

A store increased the original price of a shirt by a certain percent and then decreased the new price by the same amount. Given that the resulting price was 84% of the original price, by what percent was the price increased and decreased?

- (A) 16 (B) 20 (C) 28 (D) 36 (E) 40

AMC 8, 2019, Problem 23

After Euclid High School's last basketball game, it was determined that $\frac{1}{4}$ of the team's points were scored by Alexa and $\frac{2}{7}$ were scored by Brittany. Chelsea scored 15 points. None of the other 7 team members scored more than 2 points. What was the total number of points scored by the other 7 team members?

- (A) 10 (B) 11 (C) 12 (D) 13 (E) 14

AMC 8, 2018, Problem 1

An amusement park has a collection of scale models, with ratio 1 : 20, of buildings and other sights from around the country. The height of the United States Capitol is 289 feet. What is the height in feet of its replica to the nearest whole number?

- (A) 14 (B) 15 (C) 16 (D) 18 (E) 20

AMC 8, 2018, Problem 2

What is the value of the product $(1 + \frac{1}{1}) \cdot (1 + \frac{1}{2}) \cdot (1 + \frac{1}{3}) \cdot (1 + \frac{1}{4}) \cdot (1 + \frac{1}{5}) \cdot (1 + \frac{1}{6})$?

- (A) $\frac{7}{6}$ (B) $\frac{4}{3}$ (C) $\frac{7}{2}$ (D) 7 (E) 8

AMC 8, 2018, Problem 3

Students Arn, Bob, Cyd, Dan, Eve, and Fon are arranged in that order in a circle. They start counting: Arn first, then Bob, and so forth. When the number contains a 7 as a digit (such as 47) or is a multiple of 7 that person leaves the circle and the counting continues. Who is the last one present in the circle?

- (A) Arn
(B) Bob
(C) Cyd
(D) Dan
(E) Eve

AMC 8, 2018, Problem 5

What is the value of $1 + 3 + 5 + \cdots + 2017 + 2019 - 2 - 4 - 6 - \cdots - 2016 - 2018$?

- (A) -1010 (B) -1009 (C) 1008 (D) 1009 (E) 1010

AMC 8, 2018, Problem 6

On a trip to the beach, Anh traveled 50 miles on the highway and 10 miles on a coastal access road. He drove three times as fast on the highway as on the coastal road. If Anh spent 30 minutes driving on the coastal road, how many minutes did his entire trip take?

- (A) 50 (B) 70 (C) 80 (D) 90 (E) 100

AMC 8, 2018, Problem 7

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 9

Tyler is tiling the floor of his 12 foot by 16 foot living room. He plans to place one-foot by one-foot square tiles to form a border along the edges of the room and to fill in the rest of the floor with two-foot by two-foot square tiles. How many tiles will he use?

- (A) 48 (B) 87 (C) 91 (D) 96 (E) 120

AMC 8, 2018, Problem 12

The clock in Sri's car, which is not accurate, gains time at a constant rate. One day as he begins shopping he notes that his car clock and his watch (which is accurate) both say 12:00 noon. When he is done shopping, his watch says 12:30 and

his car clock says 12:35. Later that day, Sri loses his watch. He looks at his car clock and it says 7:00. What time?

- (A) 5 : 50 (B) 6 : 00 (C) 6 : 30 (D) 6 : 55 (E) 8 : 10

AMC 8, 2018, Problem 13

Laila took five math tests, each worth a maximum of 100 points. Laila's score on each test was an integer between 0 and 100, inclusive. Laila received the same score on the first four tests, and she received a higher score on the last test. Her average score on the five tests was 82. How many values are possible for Laila's score on the last test?

- (A) 4 (B) 5 (C) 9 (D) 10 (E) 18

AMC 8, 2018, Problem 14

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 17

Bella begins to walk from her house toward her friend Ella's house. At the same time, Ella begins to ride her bicycle toward Bella's house. They each maintain a constant speed, and Ella rides 5 times as fast as Bella walks. The distance between their houses is 2 miles, which is 10,560 feet, and Bella covers $2\frac{1}{2}$ feet with each step. How many steps will Bella take by the time she meets Ella?

- (A) 704 (B) 845 (C) 1056 (D) 1760 (E) 3520

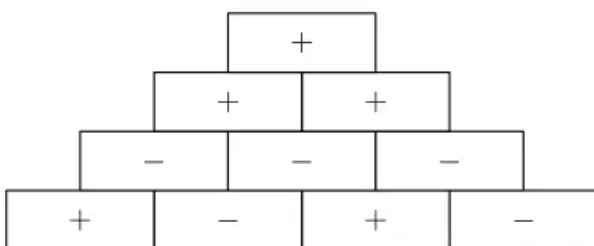
AMC 8, 2018, Problem 18

How many positive factors does 23,232 have?

- (A) 9 (B) 12 (C) 28 (D) 36 (E) 42

AMC 8, 2018, Problem 19

In a sign pyramid a cell gets a "+" if the two cells below it have the same sign, and it gets a "-" if the two cells below it have different signs. The diagram below illustrates a sign pyramid with four levels. How many possible ways are there to fill the four cells in the bottom row to produce a "+" at the top of the pyramid?



- (A) 2 (B) 4 (C) 8 (D) 12 (E) 16



AMC 8, 2018, Problem 21

How many positive three-digit integers have a remainder of 2 when divided by 6, a remainder of 5 when divided by 7, and a remainder of 7 when divided by 11?

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

AMC 8, 2018, Problem 25

How many perfect cubes lie between $2^8 + 1$ and $2^{18} + 1$, inclusive?

- (A) 4 (B) 9 (C) 10 (D) 57 (E) 58

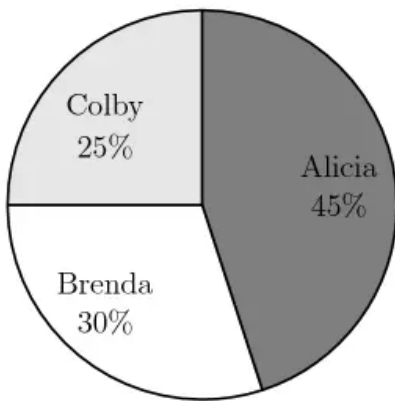
AMC 8, 2017, Problem 1

Which of the following values is the largest?

- (A) $2 + 0 + 1 + 7$ (B) $2 \times 0 + 1 + 7$ (C) $2 + 0 \times 1 + 7$ (D) $2 + 0 + 1 \times 7$
(E) $2 \times 0 \times 1 \times 7$

AMC 8, 2017, Problem 2

Alicia, Brenda, and Colby were the candidates in a recent election for student president. The pie chart below shows how the votes were distributed among the three candidates. If Brenda received 36 votes, then how many votes were cast all together?



- (A) 70 (B) 84 (C) 100 (D) 106 (E) 120

AMC 8, 2017, Problem 3

What is the value of the expression $\sqrt{16\sqrt{8\sqrt{4}}}$?

- (A) 4 (B) $4\sqrt{2}$ (C) 8 (D) $8\sqrt{2}$ (E) 16

AMC 8, 2017, Problem 4

When 0.000315 is multiplied by 7, 928, 564 the product is closest to which of the following?

- (A) 210 (B) 240 (C) 2100 (D) 2400 (E) 24000

AMC 8, 2017, Problem 5

What is the value of the expression $\frac{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8}{1+2+3+4+5+6+7+8}$?

- (A) 1020 (B) 1120 (C) 1220 (D) 2240 (E) 3360

AMC 8, 2017, 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 8

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 9

All of Marcy's marbles are blue, red, green, or yellow. One third of her marbles are blue, one fourth of them are red, and six of them are green. What is the smallest number of yellow marbles?

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

AMC 8, 2017, Problem 11

A square-shaped floor is covered with congruent square tiles. If the total number of tiles that lie on the two diagonals is 37, how many tiles cover the floor?

- (A) 148 (B) 324 (C) 361 (D) 1296 (E) 1369

AMC 8, 2017, Problem 12

The smallest positive integer greater than 1 that leaves a remainder of 1 when divided by 4, 5, and 6 lies between which of the following pairs of numbers?

- (A) 2 and 19 (B) 20 and 39 (C) 40 and 59 (D) 60 and 79 (E) 80 and 124

AMC 8, 2017, Problem 13

Peter, Emma, and Kyler played chess with each other. Peter won 4 games and lost 2 games. Emma won 3 games and lost 3 games. If Kyler lost 3 games, how many games did he win?

- (A) 0 (B) 1 (C) 2 (D) 3 (E) 4

AMC 8, 2017, Problem 14

Chloe and Zoe are both students in Ms. Demeanor's math class. Last night they each solved half of the problems in their homework assignment alone and then solved the other half together. Chloe had correct answers to only 80% of the problems she solved alone, but overall 88% of her answers were correct. Zoe had correct answers to 90% of the problems she solved alone. What was Zoe's overall percentage of correct answers?

- (A) 89 (B) 92 (C) 93 (D) 96 (E) 98

AMC 8, 2017, Problem 19

For any positive integer M , the notation $M!$ denotes the product of the integers 1 through M . What is the largest integer n for which 5^n is a factor of the sum $98! + 99! + 100!$?

- (A) 23 (B) 24 (C) 25 (D) 26 (E) 27

AMC 8, 2017, Problem 21

Suppose a , b , and c are nonzero real numbers, and $a + b + c = 0$. What are the possible value(s) for

$$\frac{a}{|a|} + \frac{b}{|b|} + \frac{c}{|c|} + \frac{abc}{|abc|}?$$

- (A) 0 (B) 1 and -1 (C) 2 and -2 (D) 0, 2, and -2 (E) 0, 1, and -1

AMC 8, 2017, Problem 23

Each day for four days, Linda traveled for one hour at a speed that resulted in her traveling one mile in an integer number of minutes. Each day after the first, her speed decreased so that the number of minutes to travel one mile increased by 5 minutes over the preceding day. Each of the four days, her distance traveled was also an integer number of miles. What was the total number of miles for the four trips?

- (A) 10 (B) 15 (C) 25 (D) 50 (E) 82

AMC 8, 2017, Problem 24

Mrs. Sanders has three grandchildren, who call her regularly. One calls her every three days, one calls her every four days, and one calls her every five days. All three called her on December 31, 2016. On how many days during the next year did she not receive a phone call from any of her grandchildren?

- (A) 78
(B) 80
(C) 144
(D) 146
(E) 152

AMC 8, 2016, 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

AMC 8, 2016, 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

AMC 8, 2016, 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

AMC 8, 2016, 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}

AMC 8, 2016, Problem 8

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

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

AMC 8, 2016, Problem 9

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

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

AMC 8, 2016, 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

AMC 8, 2016, Problem 11

Determine how many two-digit numbers satisfy the following property: when the number is added to the number obtained by reversing its digits, the sum is 132.

- (A) 5 (B) 7 (C) 9 (D) 11 (E) 12

AMC 8, 2016, Problem 12

Jefferson Middle School has the same number of boys and girls. $\frac{3}{4}$ of the girls and $\frac{2}{3}$ of the boys went on a field trip. What fraction of the students on the field trip were girls?

- (A) $\frac{1}{2}$ (B) $\frac{9}{17}$ (C) $\frac{7}{13}$ (D) $\frac{2}{3}$ (E) $\frac{14}{15}$

AMC 8, 2016, Problem 14

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 15

What is the largest power of 2 that is a divisor of $13^4 - 11^4$?

- (A) 8 (B) 16 (C) 32 (D) 64 (E) 128

AMC 8, 2016, Problem 16

Annie and Bonnie are running laps around a 400-meter oval track. They started together, but Annie has pulled ahead because she runs 25% faster than Bonnie. How many laps will Annie have run when she first passes Bonnie?

- (A) $1\frac{1}{4}$ (B) $3\frac{1}{3}$ (C) 4 (D) 5 (E) 25

AMC 8, 2016, Problem 18

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 19

The sum of 25 consecutive even integers is 10,000. What is the largest of these 25 consecutive integers?

- (A) 360 (B) 388 (C) 412 (D) 416 (E) 424

AMC 8, 2016, Problem 20

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 24

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, 2015, Problem 1

How many square yards of carpet are required to cover a rectangular floor that is 12 feet long and 9 feet wide? (There are 3 feet in a yard.)

(A) 12 (B) 36 (C) 108 (D) 324 (E) 972

AMC 8, 2015, Problem 3

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 8

What is the smallest whole number larger than the perimeter of any triangle with a side of length 5 and a side of length 19?

(A) 24 (B) 29 (C) 43 (D) 48 (E) 57

AMC 8, 2015, Problem 9

On her first day of work, Janabel sold one widget. On day two, she sold three widgets. On day three, she sold five widgets, and on each succeeding day, she sold two more widgets than she had sold on the previous day. How many widgets in total had Janabel sold after working 20 days?

(A) 39 (B) 40 (C) 210 (D) 400 (E) 401

AMC 8, 2015, Problem 14

Which of the following integers cannot be written as the sum of four consecutive odd integers?

(A) 16 (B) 40 (C) 72 (D) 100 (E) 200

AMC 8, 2015, Problem 15

At Euler Middle School, 198 students voted on two issues in a school referendum with the following results: 149 voted in favor of the first issue and 119 voted in favor of the second issue. If there were exactly 29 students who voted against



both issues, how many students voted in favor of both issues?

- (A) 49 (B) 70 (C) 79 (D) 99 (E) 149

AMC 8, 2015, Problem 16

In a middle-school mentoring program, a number of the sixth graders are paired with a ninth-grade student as a buddy. No ninth grader is assigned more than one sixth-grade buddy. If $\frac{1}{3}$ of all the ninth graders are paired with $\frac{2}{5}$ of all the sixth graders, what fraction of the total number of sixth and ninth graders have a buddy?

- (A) $\frac{2}{15}$ (B) $\frac{4}{11}$ (C) $\frac{11}{30}$ (D) $\frac{3}{8}$ (E) $\frac{11}{15}$

AMC 8, 2015, Problem 17

Jeremy's father drives him to school in rush hour traffic in 20 minutes. One day there is no traffic, so his father can drive him 18 miles per hour faster and gets him to school in 12 minutes. How far in miles is it to school?

- (A) 4 (B) 6 (C) 8 (D) 9 (E) 12

AMC 8, 2015, Problem 18

An arithmetic sequence is a sequence in which each term after the first is obtained by adding a constant to the previous term. For example, 2, 5, 8, 11, 14 is an arithmetic sequence with five terms, in which the first term is 2 and the constant added is 3. Each row and each column in this 5×5 array is an arithmetic sequence with five terms. What is the value of X ?

- (A) 21 (B) 31 (C) 36 (D) 40 (E) 42

AMC 8, 2015, Problem 20

Ralph went to the store and bought 12 pairs of socks for a total of 24. Some of the socks he bought cost 1 a pair, some of the socks he bought cost 3 a pair, and some of the socks he bought cost 4 a pair. If he bought at least one pair of each type, how many pairs of 1 socks did Ralph buy?

- (A) 4 (B) 5 (C) 6 (D) 7 (E) 8

AMC 8, 2015, Problem 23

Tom has twelve slips of paper which he wants to put into five cups labeled A, B, C, D, E . He wants the sum of the numbers on the slips in each cup to be an integer. Furthermore, he wants the five integers to be consecutive and increasing from A to E . The numbers on the papers are 2, 2, 2, 2.5, 2.5, 3, 3, 3, 3, 3.5, 4, and 4.5. If a slip with 2 goes into cup E and a slip with 3 goes into cup B , then the slip with 3.5 must go into what cup?

- (A) A (B) B (C) C (D) D (E) E

AMC 8, 2014, Problem 1

Harry and Terry are each told to calculate $8 - (2 + 5)$. Harry gets the correct answer. Terry ignores the parentheses and calculates $8 - 2 + 5$. If Harry's answer is H and Terry's answer is T , what is $H - T$?

(A) – 10 (B) – 6 (C) 0 (D) 6 (E) 10

AMC 8, 2014, Problem 2

Paul owes Paula 35 cents and has a pocket full of 5-cent coins, 10-cent coins, and 25-cent coins that he can use to pay her. What is the difference between the largest and the smallest number of coins he can use to pay her?

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

AMC 8, 2014, Problem 3

Isabella had a week to read a book for a school assignment. She read an average of 36 pages per day for the first three days and an average of 44 pages per day for the next three days. She then finished the book by reading 10 pages on the last day. How many pages were in the book?

(A) 240 (B) 250 (C) 260 (D) 270 (E) 280

AMC 8, 2014, Problem 4

The sum of two prime numbers is 85. What is the product of these two prime numbers?

(A) 85 (B) 91 (C) 115 (D) 133 (E) 166

AMC 8, 2014, Problem 5

Margie's car can go 32 miles on a gallon of gas, and gas currently costs 4 per gallon. How many miles can Margie drive on 20?

(A) 64 (B) 128 (C) 160 (D) 320 (E) 640

AMC 8, 2014, Problem 7

There are four more girls than boys in Ms. Raub's class of 28 students. What is the ratio of number of girls to the number of boys in her class?

(A) 3 : 4 (B) 4 : 3 (C) 3 : 2 (D) 7 : 4 (E) 2 : 1

AMC 8, 2014, Problem 8

Eleven members of the Middle School Math Club each paid the same integer amount for a guest speaker to talk about problem solving at their math club meeting. In all, they paid their guest speaker \$1A2. What is the missing digit A of this 3-digit number?

(A) 0 (B) 1 (C) 2 (D) 3 (E) 4

AMC 8, 2014, Problem 9

The first AMC 8 was given in 1985 and it has been given annually since that time. Samantha turned 12 years old the year that she took the seventh AMC 8. In what year was Samantha born?

(A) 1979 (B) 1980 (C) 1981 (D) 1982 (E) 1983



AMC 8, 2014, Problem 13

If n and m are integers and $n^2 + m^2$ is even, which of the following is impossible?

- (A) n and m are even (B) n and m are odd (C) $n + m$ is even (D) $n + m$ is odd (E) none of these are impossible

AMC 8, 2014, Problem 17

George walks 1 mile to school. He leaves home at the same time each day, walks at a steady speed of 3 miles per hour, and arrives just as school begins. Today he was distracted by the pleasant weather and walked the first $\frac{1}{2}$ mile at a speed of only 2 miles per hour. At how many miles per hour must George run the last $\frac{1}{2}$ mile in order to arrive just as school begins today?

- (A) 4 (B) 6 (C) 8 (D) 10 (E) 12

AMC 8, 2014, Problem 19

A cube with 3-inch edges is to be constructed from 27 smaller cubes with 1-inch edges. Twenty-one of the cubes are colored red and 6 are colored white. If the 3-inch cube is constructed to have the smallest possible white surface area showing, what fraction of the surface area is white?

- (A) $\frac{5}{54}$ (B) $\frac{1}{9}$ (C) $\frac{5}{27}$ (D) $\frac{2}{9}$ (E) $\frac{1}{3}$

AMC 8, 2014, Problem 21

The 7-digit numbers $\underline{74A52B1}$ and $\underline{326AB4C}$ are each multiples of 3. Which of the following could be the value of C ?

- (A) 1 (B) 2 (C) 3 (D) 5 (E) 8

AMC 8, 2014, Problem 22

A 2-digit number is such that the product of the digits plus the sum of the digits is equal to the number. What is the units digit of the number?

- (A) 1 (B) 3 (C) 5 (D) 7 (E) 9

AMC 8, 2014, Problem 23

Three members of the Euclid Middle School girls' softball team had the following conversation.

Ashley: I just realized that our uniform numbers are all 2-digit primes.

Bethany: And the sum of your two uniform numbers is the date of my birthday earlier this month.

Caitlin: That's funny. The sum of your two uniform numbers is the date of my birthday later this month.

Ashley: And the sum of your two uniform numbers is today's date.

What number does Caitlin wear?

- (A) 11 (B) 13 (C) 17 (D) 19 (E) 23

AMC 8, 2014, Problem 25

A straight one-mile stretch of highway, 40 feet wide, is closed. Robert rides his bike on a path composed of semicircles shown. If he rides at 5 miles per hour, how many hours will it take to cover the one-mile stretch?

Note: 1 mile = 5280 feet

- (A) $\frac{\pi}{11}$ (B) $\frac{\pi}{10}$ (C) $\frac{\pi}{5}$ (D) $\frac{2\pi}{5}$ (E) $\frac{2\pi}{3}$

AMC 8, 2013, Problem 1

Danica wants to arrange her model cars in rows with exactly 6 cars in each row. She now has 23 model cars. What is the smallest number of additional cars she must buy in order to be able to arrange all her cars this way?

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

AMC 8, 2013, Problem 2

A sign at the fish market says, "50% off, today only: half-pound packages for just \$3 per package." What is the regular price for a full pound of fish, in dollars? (Assume that there are no deals for bulk)

- (A) 6 (B) 9 (C) 10 (D) 12 (E) 15

AMC 8, 2013, Problem 3

What is the value of $4 \cdot (-1 + 2 - 3 + 4 - 5 + 6 - 7 + \cdots + 1000)$?

- (A) -10 (B) 0 (C) 1 (D) 500 (E) 2000

AMC 8, 2013, Problem 4

Eight friends ate at a restaurant and agreed to share the bill equally. Because Judi forgot her money, each of her seven friends paid an extra \$2.50 to cover her portion of the total bill. What was the total bill?

- (A) \$120 (B) \$128 (C) \$140 (D) \$144 (E) \$160

AMC 8, 2013, Problem 6

The number in each box below is the product of the numbers in the two boxes that touch it in the row above. For example, $30 = 6 \times 5$. What is the missing number in the top row?

- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

AMC 8, 2013, Problem 7

Trey and his mom stopped at a railroad crossing to let a train pass. As the train began to pass, Trey counted 6 cars in the first 10 seconds. It took the train 2 minutes and 45 seconds to clear the crossing at a constant speed. Which of the following was the most likely number of cars in the train?



- (A) 60 (B) 80 (C) 100 (D) 120 (E) 140

AMC 8, 2013, Problem 9

The Incredible Hulk can double the distance it jumps with each succeeding jump. If its first jump is 1 meter, the second jump is 2 meters, the third jump is 4 meters, and so on, then on which jump will it first be able to jump more than 1 kilometer?

- (A) 9th (B) 10th (C) 11th (D) 12th (E) 13th

AMC 8, 2013, Problem 10

What is the ratio of the least common multiple of 180 and 594 to the greatest common factor of 180 and 594?

- (A) 110 (B) 165 (C) 330 (D) 625 (E) 660

AMC 8, 2013, Problem 11

Ted's grandfather used his treadmill on 3 days this week. He went 2 miles each day. On Monday he jogged at a speed of 5 miles per hour. He walked at the rate of 3 miles per hour on Wednesday and at 4 miles per hour on Friday. If Grandfather had always walked at 4 miles per hour, he would have spent less time on the treadmill. How many minutes less?

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

AMC 8, 2013, Problem 12

At the 2013 Winnebago County Fair a vendor is offering a "fair special" on sandals. If you buy one pair of sandals at the regular price of 50, you get a second pair at a 40% discount, and a third pair at half the regular price. Javier took advantage of the "fair special" to buy three pairs of sandals. What percentage of the 150 regular price did he save?

- (A) 25% (B) 30% (C) 33% (D) 40% (E) 45%

AMC 8, 2013, Problem 13

When Clara totaled her scores, she inadvertently reversed the units digit and the tens digit of one score. By which of the following might her incorrect sum have differed from the correct one?

- (A) 45 (B) 46 (C) 47 (D) 48 (E) 49

AMC 8, 2013, Problem 15

If $3^p + 3^4 = 90$, $2^r + 44 = 76$, and $5^3 + 6^s = 1421$, what is the product of p , r , and s ?

- (A) 27 (B) 40 (C) 50 (D) 70 (E) 90

AMC 8, 2013, Problem 16

A number of students from Fibonacci Middle School are taking part in a community service project. The ratio of 8th-graders to 6th-graders is 5 : 3, and the ratio of 8th-graders to 7th-graders is 8 : 5. What is the smallest number of students that could be participating in the project?



- (A) 16 (B) 40 (C) 55 (D) 79 (E) 89

AMC 8, 2013, Problem 17

The sum of six consecutive positive integers is 2013. What is the largest of these six integers?

- (A) 335 (B) 338 (C) 340 (D) 345 (E) 350

AMC 8, 2013, Problem 19

Bridget, Cassie, and Hannah are discussing the results of their last math test. Hannah shows Bridget and Cassie her test, but Bridget and Cassie don't show theirs to anyone. Cassie says, 'I didn't get the lowest score in our class,' and Bridget adds, 'I didn't get the highest score.' What is the ranking of the three girls from the highest score to the lowest score?

- (A) Hannah, Cassie, Bridget
(B) Hannah, Bridget, Cassie
(C) Cassie, Bridget, Hannah
(D) Cassie, Hannah, Bridget
(E) Bridget, Cassie, Hannah

AMC 8, 2013, Problem 21

Samantha lives 2 blocks west and 1 block south of the southwest corner of City Park. Her school is 2 blocks east and 2 blocks north of the northeast corner of City Park. On school days she bikes on streets to the southwest corner of City Park, then takes a diagonal path through the park to the northeast corner, and then bikes on streets to school. If her route is as short as possible, how many different routes can she take?

- (A) 3 (B) 6 (C) 9 (D) 12 (E) 18

AMC 8, 2012, Problem 1

Rachelle uses 3 pounds of meat to make 8 hamburgers for her family. How many pounds of meat does she need to make 24 hamburgers for a neighborhood picnic?

- (A) 6 (B) $6\frac{2}{3}$ (C) $7\frac{1}{2}$ (D) 8 (E) 9

AMC 8, 2012, Problem 2

In the country of East Westmore, statisticians estimate there is a baby born every 8 hours and a death every day. To the nearest hundred, how many people are added to the population of East Westmore each year?

- (A) 600 (B) 700 (C) 800 (D) 900 (E) 1000

AMC 8, 2012, Problem 3

On February 13 The Oshkosh Northwestern listed the length of daylight as 10 hours and 24 minutes, the sunrise was 6 : 57am, and the sunset as 8 : 15pm. The length of daylight and sunrise were correct, but the sunset was wrong. When



did the sun really set?

- (A) 5 : 10pm (B) 5 : 21pm (C) 5 : 41pm (D) 5 : 57pm (E) 6 : 03pm

AMC 8, 2012, Problem 4

Peter's family ordered a 12-slice pizza for dinner. Peter ate one slice and shared another slice equally with his brother Paul. What fraction of the pizza did Peter eat?

- (A) $\frac{1}{24}$ (B) $\frac{1}{12}$ (C) $\frac{1}{8}$ (D) $\frac{1}{6}$ (E) $\frac{1}{4}$

AMC 8, 2012, Problem 8

A shop advertises everything is "half price in today's sale." In addition, a coupon gives a 20% discount on sale prices. Using the coupon, the price today represents what percentage off the original price?

- (A) 10 (B) 33 (C) 40 (D) 60 (E) 70

AMC 8, 2012, Problem 9

The Fort Worth Zoo has a number of two-legged birds and a number of four-legged mammals. On one visit to the zoo, Margie counted 200 heads and 522 legs. How many of the animals that Margie counted were two-legged birds?

- (A) 61 (B) 122 (C) 139 (D) 150 (E) 161

AMC 8, 2012, Problem 10

How many 4-digit numbers greater than 1000 are there that use the four digits of 2012?

- (A) 6 (B) 7 (C) 8 (D) 9 (E) 12

AMC 8, 2012, Problem 12

What is the units digit of 13^{2012} ?

- (A) 1 (B) 3 (C) 5 (D) 7 (E) 9

AMC 8, 2012, Problem 13

Jamar bought some pencils costing more than a penny each at the school bookstore and paid \$1.43. Sharona bought some of the same pencils and paid \$1.87. How many more pencils did Sharona buy than Jamar?

- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

AMC 8, 2012, Problem 15

The smallest number greater than 2 that leaves a remainder of 2 when divided by 3, 4, 5, or 6 lies between what numbers?

- (A) 40 and 50 (B) 51 and 55 (C) 56 and 60 (D) 61 and 65 (E) 66 and 99

AMC 8, 2012, Problem 16



Each of the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 is used only once to make two five-digit numbers so that largest possible sum. Which of the following could be one of the numbers?

- (A) 76531 (B) 86724 (C) 87431
(D) 96240
(E) 97403

AMC 8, 2012, Problem 18

What is the smallest positive integer that is neither prime nor square and that has no prime factor less than 50?

- (A) 3127
(B) 3133
(C) 3137
(D) 3139
(E) 3149

AMC 8, 2012, Problem 19

In a jar of red, green, and blue marbles, all but 6 are red marbles, all but 8 are green, and all but 4 are blue. How many marbles are in the jar?

- (A) 6
(B) 8
(C) 9
(D) 10
(E) 12

AMC 8, 2012, Problem 20

What is the correct ordering of the three numbers $\frac{5}{19}$, $\frac{7}{21}$, and $\frac{9}{23}$, in increasing order?

- (A) $\frac{9}{23} < \frac{7}{21} < \frac{5}{19}$
(B) $\frac{5}{19} < \frac{7}{21} < \frac{9}{23}$
(C) $\frac{9}{23} < \frac{5}{19} < \frac{7}{21}$
(D) $\frac{5}{19} < \frac{9}{23} < \frac{7}{21}$
(E) $\frac{7}{21} < \frac{5}{19} < \frac{9}{23}$

AMC 8, 2012, Problem 22

Let R be a set of nine distinct integers. Six of the elements are 2, 3, 4, 6, 9, and 14. What is the number of possible values of the median of R ?

- (A) 4
(B) 5
(C) 6
(D) 7
(E) 8

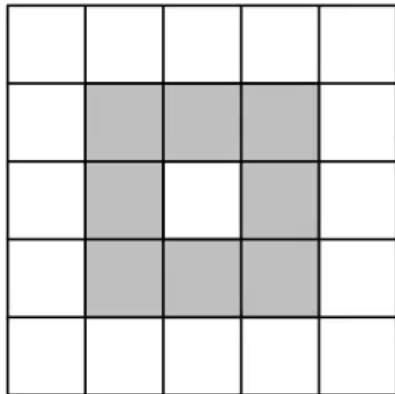
AMC 8, 2011, Problem 1

Margie bought 3 apples at a cost of 50 cents per apple. She paid with a 5 -dollar bill. How much change receive?

- (A) \$1.50
- (B) \$2.00
- (C) \$2.50
- (D) \$3.00
- (E) \$3.50

AMC 8, 2011, Problem 3

Extend the square pattern of 8 black and 17 white square tiles by attaching a border of black tiles around the square. What is the ratio of black tiles to white tiles in the extended pattern?



- (A) 8 : 17
- (B) 25 : 49
- (C) 36 : 25
- (D) 32 : 17
- (E) 36 : 17

AMC 8, 2011, Problem 6

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
- (E) 351

AMC 8, 2011, Problem 14

There are 270 students at Colfax Middle School, where the ratio of boys to girls is 5 : 4 . There are 180 students at Winthrop Middle School, where the ratio of boys to girls is 4 : 5 . The two schools hold a dance and all students from both schools attend. What fraction of the students at the dance are girls?

- (A) $\frac{7}{18}$

- (B) $\frac{7}{15}$
- (C) $\frac{22}{45}$
- (D) $\frac{1}{2}$
- (E) $\frac{23}{45}$

AMC 8, 2011, Problem 15

How many digits are in the product $4^5 \cdot 5^{10}$?

- (A) 8
- (B) 9
- (C) 10
- (D) 11
- (E) 12

AMC 8, 2011, Problem 22

What is the tens digit of 7^{2011} ?

- (A) 0
- (B) 1
- (C) 3
- (D) 4
- (E) 7

AMC 8, 2011, Problem 23

How many 4-digit positive integers have four different digits, where the leading digit is not zero, the integer is a multiple of 5, and 5 is the largest digit?

- (A) 24
- (B) 48
- (C) 60 : 90
- (D) 84
- (E) 108\$

AMC 8, 2011, Problem 24

In how many ways can 10001 be written as the sum of two primes?

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

AMC 8, 2010, Problem 1

At Euclid Middle School, the mathematics teachers are Miss Germain, Mr. Newton, and Mrs. Young. There are 11 students in Mrs. Germain's class, 8 students in Mr. Newton's class, and 9 students in Mrs. Young's class taking the AMC 8

this year. How many mathematics students at Euclid Middle School are taking the contest?

- (A) 26
- (B) 27
- (C) 28
- (D) 29
- (E) 30

AMC 8, 2010, Problem 5

Alice needs to replace a light bulb located 10 centimeters below the ceiling in her kitchen. The ceiling is 2.4 meters above the floor. Alice is 1.5 meters tall and can reach 46 centimeters above the top of her head. Standing on a stool, she can just reach the light bulb. What is the height of the stool, in centimeters?

- (A) 32
- (B) 34
- (C) 36
- (D) 38
- (E) 40

AMC 8, 2010, Problem 7

Using only pennies, nickels, dimes, and quarters, what is the smallest number of coins Freddie would need so he could pay any amount of money less than a dollar?

- (A) 6
- (B) 10
- (C) 15
- (D) 25
- (E) 99

AMC 8, 2010, Problem 8

As Emily is riding her bicycle on a long straight road, she spots Emerson skating in the same direction $\frac{1}{2}$ mile in front of her. After she passes him, she can see him in her rear mirror until he is $\frac{1}{2}$ mile behind her. Emily rides at a constant rate of 12 miles per hour, and Emerson skates at a constant rate of 8 miles per hour. For how many minutes can Emily see Emerson?

- (A) 6
- (B) 8
- (C) 12
- (D) 15
- (E) 16

AMC 8, 2010, Problem 9

Ryan got 80% of the problems correct on a 25 -problem test, 90% on a 40 -problem test, and 70% on a 10 -problem test. What percent of all the problems did Ryan answer correctly?

- (A) 64

- (B) 75
- (C) 80
- (D) 84
- (E) 86

AMC 8, 2010, Problem 10

Six pepperoni circles will exactly fit across the diameter of a 12 -inch pizza when placed. If a total of 24 circles of pepperoni are placed on this pizza without overlap, what fraction of the pizza is covered by pepperoni?

- (A) $\frac{1}{2}$
- (B) $\frac{2}{3}$
- (C) $\frac{3}{4}$
- (D) $\frac{5}{6}$
- (E) $\frac{7}{8}$

AMC 8, 2010, Problem 11

The top of one tree is 16 feet higher than the top of another tree. The heights of the two trees are in the ratio 3 : 4 . In feet, how tall is the taller tree?

- (A) 48
- (B) 64
- (C) 80
- (D) 96
- (E) 112

AMC 8, 2010, Problem 12

Of the 500 balls in a large bag, 80% are red and the rest are blue. How many of the red balls must be removed so that 75% of the remaining balls are red?

- (A) 25
- (B) 50
- (C) 75
- (D) 100
- (E) 150

AMC 8, 2010, Problem 13

The lengths of the sides of a triangle in inches are three consecutive integers. The length of the shortest side is 30% of the perimeter. What is the length of the longest side?

- (A) 7
- (B) 8
- (C) 9
- (D) 10
- (E) 11

AMC 8, 2010, Problem 14

What is the sum of the prime factors of 2010?

- (A) 67
- (B) 75
- (C) 77
- (D) 201
- (E) 210

AMC 8, 2010, Problem 15

A jar contains 5 different colors of gumdrops. 30% are blue, 20% are brown, 15% are red, 10% are yellow, and other 30 gumdrops are green. If half of the blue gumdrops are replaced with brown gumdrops, how many gumdrops will be brown?

- (A) 35
- (B) 36
- (C) 42
- (D) 48
- (E) 64

AMC 8, 2010, Problem 20

In a room, $\frac{2}{5}$ of the people are wearing gloves, and $\frac{3}{4}$ of the people are wearing hats. What is the minimum number of people in the room wearing both a hat and a glove?

- (A) 3
- (B) 5
- (C) 8
- (D) 15
- (E) 20

AMC 8, 2010, Problem 21

Hui is an avid reader. She bought a copy of the best seller Math is Beautiful. On the first day, Hui read $\frac{1}{5}$ of the pages plus 12 more, and on the second day she read $\frac{1}{4}$ of the remaining pages plus 15 pages. On the third day she read $\frac{1}{3}$ of the remaining pages plus 18 pages. She then realized that there were only 62 pages left to read, which she read the next day. How many pages are in this book?

- (A) 120
- (B) 180
- (C) 240
- (D) 300
- (E) 360

AMC 8, 2010, Problem 22

The hundreds digit of a three-digit number is 2 more than the units digit. The digits of the three-digit number are reversed, and the result is subtracted from the original three-digit number. What is the units digit of the result?

- (A) 0

- (B) 2
- (C) 4
- (D) 6
- (E) 8

AMC 8, 2010, Problem 24

What is the correct ordering of the three numbers, 10^8 , 5^{12} , and 2^{24} ?

- (A) $2^{24} < 10^8 < 5^{12}$
- (B) $2^{24} < 5^{12} < 10^8$
- (C) $5^{12} < 2^{24} < 10^8$
- (D) $10^8 < 5^{12} < 2^{24}$
- (E) $10^8 < 2^{24} < 5^{12}$

AMC 8, 2010, Problem 25

Everyday at school, Jo climbs a flight of 6 stairs. Jo can take the stairs 1, 2, or 3 at a time. For example, Jo could climb 3, then 1, then 2. In how many ways can Jo climb the stairs?

- (A) 13
- (B) 18
- (C) 20
- (D) 22
- (E) 24

AMC 8, 2009, Problem 1

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) 11
- (E) 14

AMC 8, 2009, Problem 2

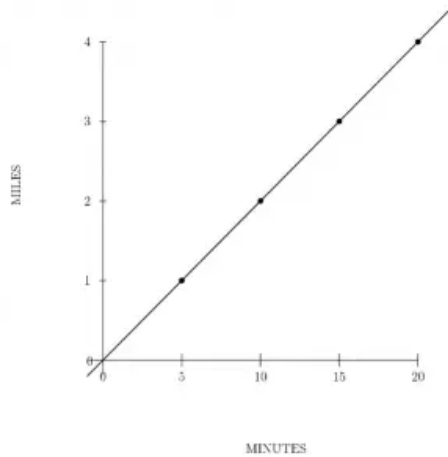
On average, for every 4 sports cars sold at the local dealership, 7 sedans are sold. The dealership predicts that it will sell 28 sports cars next month. How many sedans does it expect to sell?

- (A) 7
- (B) 32
- (C) 35
- (D) 49
- (E) 112

AMC 8, 2009, Problem 3



The graph shows the constant rate at which Suzanna rides her bike. If she rides a total of a half an hour speed, how many miles would she have ridden?



- (A) 5 (B) 5.5 (C) 6 (D) 6.5 (E) 7

AMC 8, 2009, Problem 5

A sequence of numbers starts with 1, 2, and 3 . The fourth number of the sequence is the sum of the previous three numbers in the sequence: $1 + 2 + 3 = 6$. In the same way, every number after the fourth is the sum of the previous three numbers. What is the eighth number in the sequence?

- (A) 11
(B) 20
(C) 37
(D) 68
(E) 99

AMC 8, 2009, Problem 6

Steve's empty swimming pool will hold 24, 000 gallons of water when full. It will be filled by 4 hoses, each of which supplies 2.5 gallons of water per minute. How many hours will it take to fill Steve's pool?

- (A) 40
(B) 42
(C) 44
(D) 46
(E) 48

AMC 8, 2009, Problem 8

The length of a rectangle is increased by 10% percent and the width is decreased by 10% percent. What percent of the old area is the new area?

- (A) 90
(B) 99
(C) 100

(D) 101

(E) 110

AMC 8, 2009, Problem 11

The Amaco Middle School bookstore sells pencils costing a whole number of cents. Some seventh graders each bought a pencil, paying a total of 1.43 dollars. Some of the 30 sixth graders each bought a pencil, and they paid a total of 1.95 dollars. How many more sixth graders than seventh graders bought a pencil?

(A) 1

(B) 2

(C) 3

(D) 4

(E) 5

AMC 8, 2009, Problem 14

Austin and Temple are 50 miles apart along Interstate 35. Bonnie drove from Austin to her daughter's house in Temple, averaging 60 miles per hour. Leaving the car with her daughter, Bonnie rode a bus back to Austin along the same route and averaged 40 miles per hour on the return trip. What was the average speed for the round trip, in miles per hour?

(A) 46

(B) 48

(C) 50

(D) 52

(E) 54

AMC 8, 2009, Problem 15

A recipe that makes 5 servings of hot chocolate requires 2 squares of chocolate, $\frac{1}{4}$ cup sugar, 1 cup water and 4 cups milk. Jordan has 5 squares of chocolate, 2 cups of sugar, lots of water, and 7 cups of milk. If he maintains the same ratio of ingredients, what is the greatest number of servings of hot chocolate he can make?

(A) $5\frac{1}{8}$

(B) $6\frac{1}{4}$

(C) $7\frac{1}{2}$

(D) $8\frac{3}{4}$

(E) $9\frac{7}{8}$

AMC 8, 2009, Problem 17

The positive integers x and y are the two smallest positive integers for which the product of 360 and x is a square and the product of 360 and y is a cube. What is the sum of x and y ?

(A) 80

(B) 85

(C) 115

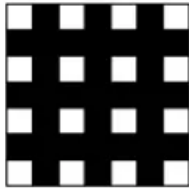
(D) 165

(E) 610



AMC 8, 2009, Problem 18

The diagram represents a 7-foot-by-7-foot floor that is tiled with 1-square-foot black tiles and white tiles. If the corners have white tiles. If a 15-foot-by-15-foot floor is to be tiled in the same manner, how many white tiles needed?



- (A) 49
- (B) 57
- (C) 64
- (D) 96
- (E) 126

AMC 8, 2009, Problem 22

How many whole numbers between 1 and 1000 do not contain the digit 1?

- (A) 512
- (B) 648
- (C) 720
- (D) 728
- (E) 800

AMC 8, 2009, Problem 23

On the last day of school, Mrs. Awesome gave jelly beans to her class. She gave each boy as many jelly beans as there were boys in the class. She gave each girl as many jelly beans as there were girls in the class. She brought 400 jelly beans, and when she finished, she had six jelly beans left. There were two more boys than girls in her class. How many students were in her class?

- (A) 26
- (B) 28
- (C) 30
- (D) 32
- (E) 34

AMC 8, 2009, Problem 24

The letters A , B , C and D represent digits. If

$$\begin{array}{r} A \ B \\ + \ C \ A \\ \hline D \ A \end{array} \text{ and } \begin{array}{r} A \ B \\ - \ C \ A \\ \hline A \end{array}$$



what digit does D represent?

- (A) 5 (B) 6 (C) 7 (D) 8 (E) 9

AMC 8, 2008, Problem 1

Susan had 50 dollars to spend at the carnival. She spent 12 dollars on food and twice as much on rides. How many dollars did she have left to spend?

- (A) 12
(B) 14
(C) 26
(D) 38
(E) 50

AMC 8, 2008, Problem 2

The ten-letter code BEST OF LUCK represents the ten digits 0 – 9, in order. What 4 -digit number is represented by the code word CLUE?

- (A) 8671
(B) 8672
(C) 9781
(D) 9782
(E) 9872

AMC 8, 2008, Problem 3

If February is a month that contains Friday the 13th, what day of the week is February 1?

- (A) Sunday
(B) Monday
(C) Wednesday
(D) Thursday
(E) Saturday

AMC 8, 2008, Problem 4

In the figure, the outer equilateral triangle has area 16 , the inner equilateral triangle has area 1 , and the three trapezoids are congruent. What is the area of one of the trapezoids?



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

AMC 8, 2008, Problem 5



Barney Schwinn notices that the odometer on his bicycle reads 1441 , a palindrome, because it reads the same forward and backward. After riding 4 more hours that day and 6 the next, he notices that the odometer shows another palindrome, 1661 . What was his average speed in miles per hour?
(A) 15 (B) 16 (C) 18 (D) 20 (E) 22

AMC 8, 2008, Problem 6

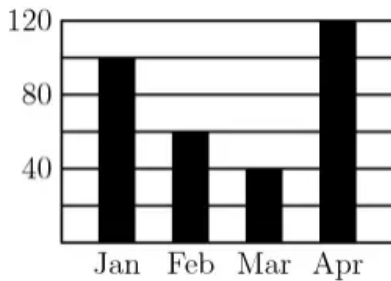
In the figure, what is the ratio of the area of the gray squares to the area of the white squares?



(A) 3 : 10 (B) 3 : 8 (C) 3 : 7 (D) 3 : 5 (E) 1 : 1

AMC 8, 2008, Problem 9

Candy sales from the Boosters Club from January through April are shown. What were the average sales per month in dollars?



(A) 60 (B) 70 (C) 75 (D) 80 (E) 85

AMC 8, 2008, Problem 10

The average age of the 6 people in Room A is 40. The average age of the 4 people in Room B is 25 . If the two groups are combined, what is the average age of all the people?
(A) 32.5 (B) 33 (C) 33.5 (D) 34 (E) 35

AMC 8, 2008, Problem 11

Each of the 39 students in the eighth grade at Lincoln Middle School has one dog or one cat or both a dog and a cat. Twenty students have a dog and 26 students have a cat. How many students have both a dog and a cat?
(A) 7 (B) 13 (C) 19 (D) 39 (E) 46

AMC 8, 2008, Problem 12

A ball is dropped from a height of 3 meters. On its first bounce it rises to a height of 2 meters. It keeps falling and bouncing to $\frac{2}{3}$ of the height it reached in the previous bounce. On which bounce will it rise to a height less than 0.5 meters?

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

AMC 8, 2008, Problem 13

Mrs. Harman needs to know the combined weight in pounds of three boxes he wants to mail. However, the only available scale is not accurate for weights less than 100 pounds or more than 150 pounds. So the boxes are weighed in pairs in every possible way. The results are 122, 125 and 127 pounds. What is the combined weight in pounds of the three boxes?

- (A) 160 (B) 170 (C) 187
(D) 195 (E) 354

AMC 8, 2008, Problem 22

For how many positive integer values of n are both $\frac{n}{3}$ and $3n$ three-digit whole numbers?

- (A) 12
(B) 21
(C) 27
(D) 33
(E) 34

AMC 8, 2007, Problem 1

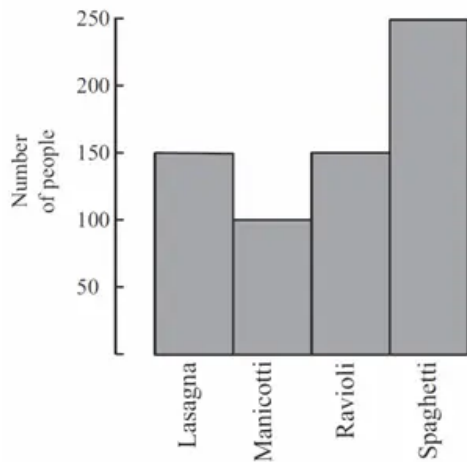
Theresa's parents have agreed to buy her tickets to see her favorite band if she spends an average of 10 hours per week helping around the house for 6 weeks. For the first 5 weeks she helps around the house for 8, 11, 7, 12 and 10 hours. How many hours must she work for the final week to earn the tickets?

- (A) 9
(B) 10
(C) 11
(D) 12
(E) 13

AMC 8, 2007, Problem 2

650 students were surveyed about their pasta preferences. The choices were lasagna, manicotti, ravioli and spaghetti. The results of the survey are displayed in the bar graph. What is the ratio of the number of students who preferred spaghetti to the number of students who preferred manicotti?





- (A) $\frac{2}{5}$
- (B) $\frac{1}{2}$
- (C) $\frac{5}{4}$
- (D) $\frac{5}{3}$
- (E) $\frac{5}{2}$

AMC 8, 2007, Problem 3

What is the sum of the two smallest prime factors of 250?

- (A) 2
- (B) 5
- (C) 7
- (D) 10
- (E) 12

AMC 8, 2007, Problem 6

The average cost of a long-distance call in the USA in 1985 was 41 cents per minute, and the average cost of a long-distance call in the USA in 2005 was 7 cents per minute. Find the approximate percent decrease in the cost per minute of a long-distance call.

- (A) 7
- (B) 17
- (C) 34
- (D) 41
- (E) 80

AMC 8, 2007, Problem 7

The average age of 5 people in a room is 30 years. An 18-year-old person leaves the room. What is the average age of the four remaining people?

- (A) 25



- (B) 26
- (C) 29
- (D) 33
- (E) 36

AMC 8, 2007, Problem 10

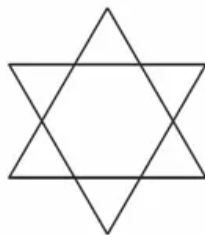
For any positive integer n , define $\sigma(n)$ to be the sum of the positive factors of n . For example, $\sigma(6) = 1 + 2 + 3 + 6 = 12$.

Find $\sigma(\sigma(11))$.

- (A) 13
- (B) 20
- (C) 24
- (D) 28
- (E) 30

AMC 8, 2007, Problem 12

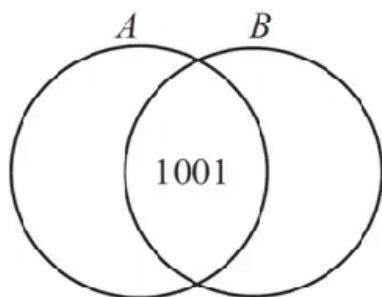
A unit hexagram is composed of a regular hexagon of side length 1 and its 6 equilateral triangular extensions, as shown in the diagram. What is the ratio of the area of the extensions to the area of the original hexagon?



- (A) 1 : 1
- (B) 6 : 5
- (C) 3 : 2
- (D) 2 : 1
- (E) 3 : 1

AMC 8, 2007, Problem 13

Sets A and B , shown in the Venn diagram, have the same number of elements. Their union has 2007 elements and their intersection has 1001 elements. Find the number of elements in A .



- (A) 503
- (B) 1006
- (C) 1504
- (D) 1507
- (E) 1510

AMC 8, 2007, Problem 15

Let a , b and c be numbers with $0 < a < b < c$. Which of the following is impossible?

- (A) $a + c < b$
- (B) $a \cdot b < c$
- (C) $a + b < c$
- (D) $a \cdot c < b$
- (E) $\frac{b}{c} = a$

AMC 8, 2008, Problem 17

A mixture of 30 liters of paint is 25% red tint, 30% yellow tint and 45% water. Five liters of yellow tint are added to the original mixture. What is the percent of yellow tint in the new mixture?

- (A) 25
- (B) 35
- (C) 40
- (D) 45
- (E) 50

AMC 8, 2007, Problem 22

A lemming sits at a corner of a square with side length 10 meters. The lemming runs 6.2 meters along a diagonal toward the opposite corner. It stops, makes a 90 degree right turn and runs 2 more meters. A scientist measures the shortest distance between the lemming and each side of the square. What is the average of these four distances in meters?

- (A) 2
- (B) 4.5
- (C) 5
- (D) 6.2
- (E) 7

AMC 8, 2006, Problem 1

Mindy made three purchases for \$1.98, \$5.04, and \$9.89. What was her total, to the nearest dollar?

- (A) 10
- (B) 15
- (C) 16
- (D) 17
- (E) 18

AMC 8, 2006, Problem 2

On the AMC 8 contest Billy answers 13 questions correctly, answers 7 questions incorrectly and doesn't

5. What is his score? (right = +1, wrong or N/A = +0)

- (A) 1
- (B) 6
- (C) 13
- (D) 19
- (E) 26

AMC 8, 2006, Problem 3

Elisa swims laps in the pool. When she first started, she completed 10 laps in 25 minutes. Now she can finish 12 laps in 24 minutes. By how many minutes has she improved her lap time?

- (A) $\frac{1}{2}$
- (B) $\frac{3}{4}$
- (C) 1
- (D) 2
- (E) 3

AMC 8, 2006, Problem 8

The table shows some of the results of a survey by radio station KACL. What percentage of the males surveyed listen to the station?

	Listen	Don't Listen	Total
Males	?	26	?
Females	58	?	96
Total	136	64	200

- (A) 39
- (B) 48
- (C) 52
- (D) 55
- (E) 75

AMC 8, 2006, Problem 9

What is the product of $\frac{3}{2} \times \frac{4}{3} \times \frac{5}{4} \times \cdots \times \frac{2006}{2005}$?

- (A) 1
- (B) 1002
- (C) 1003
- (D) 2005
- (E) 2006

AMC 8, 2006, Problem 11

How many two-digit numbers have digits whose sum is a perfect square?

- (A) 13

- (B) 16
- (C) 17
- (D) 18
- (E) 19

AMC 8, 2006, Problem 12

Antonette gets 70% on a 10 -problem test, 80% on a 20 -problem test and 90% on a 30 problem test. If the three tests are combined into one 60 -problem test, which percent is closest to her overall score?

- (A) 40
- (B) 77
- (C) 80
- (D) 83
- (E) 87

AMC 8, 2006, Problem 13

Cassie leaves Escanaba at 8 : 30 AM heading for Marquette on her bike. She bikes at a uniform rate of 12 miles per hour. Brian leaves Marquette at 9 : 00 AM heading for Escanaba on his bike. He bikes at a uniform rate of 16 miles per hour. They both bike on the same 62 mile route between Escanaba and Marquette. At what time in the morning do they meet?

- (A) 10 : 00
- (B) 10 : 15
- (C) 10 : 30
- (D) 11 : 00
- (E) 11 : 30

AMC 8, 2006, Problem 14

A Novel Assignment

The students in Mrs. Reed's English class are reading the same 760 -page novel. Three friends, Alice, Bob and Chandra, are in the class. Alice reads a page in 20 seconds, Bob reads a page in 45 seconds and Chandra reads a page in 30 seconds.

If Bob and Chandra both read the whole book, Bob will spend how many more seconds reading than Chandra?

- (A) 7, 600
- (B) 11, 400
- (C) 12, 500
- (D) 15, 200
- (E) 22, 800

AMC 8, 2006, Problem 15

A Novel Assignment

The students in Mrs. Reed's English class are reading the same 760 -page novel. Three friends, Alice, Bob and Chandra, are in the class. Alice reads a page in 20 seconds, Bob reads a page in 45 seconds and Chandra reads a page in 30 seconds.

Chandra and Bob, who each have a copy of the book, decide that they can save time by "team reading" the book. Chandra will read from page 1 to a certain page and Bob will read from the next page through page finishing the book. When they are through they will tell each other about the part they read. What is the last page Chandra should read so that she and Bob spend the same amount of time reading the novel?

- (A) 425
- (B) 444
- (C) 456
- (D) 484
- (E) 506

AMC 8, 2006, Problem 16

A Novel Assignment

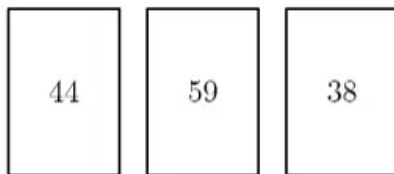
The students in Mrs. Reed's English class are reading the same 760 -page novel. Three friends, Alice, Bob and Chandra, are in the class. Alice reads a page in 20 seconds, Bob reads a page in 45 seconds and Chandra reads a page in 30 seconds.

Before Chandra and Bob start reading, Alice says she would like to team read with them. If they divide the book into three sections so that each reads for the same length of time, how many seconds will each have to read?

- (A) 6400
- (B) 6600
- (C) 6800
- (D) 7000
- (E) 7200

AMC 8, 2006, Problem 25

Barry wrote 6 different numbers, one on each side of 3 cards, and laid the cards on a table, as shown. The sums of the two numbers on each of the three cards are equal. The three numbers on the hidden sides are prime numbers. What is the average of the hidden prime numbers?



- (A) 13
- (B) 14
- (C) 15
- (D) 16
- (E) 17

AMC 8, 2005, Problem 1

Connie multiplies a number by 2 and gets 60 as her answer. However, she should have divided the number by 2 to get the correct answer. What is the correct answer?

- (A) 7.5
- (B) 15
- (C) 30
- (D) 120
- (E) 240

AMC 8, 2005, Problem 2

Karl bought five folders from Pay-A-Lot at a cost of \$2.50 each. Pay-A-Lot had a 20%-off sale the following day. How much could Karl have saved on the purchase by waiting a day?

- (A) \$1.00
- (B) \$2.00
- (C) \$2.50
- (D) \$2.75
- (E) \$5.00

AMC 8, 2005, Problem 4

A square and a triangle have equal perimeters. The lengths of the three sides of the triangle are 6.1 cm, 8.2 cm and 9.7 cm. What is the area of the square in square centimeters?

- (A) 24
- (B) 25
- (C) 36
- (D) 48
- (E) 64

AMC 8, 2005, Problem 5

Soda is sold in packs of 6, 12 and 24 cans. What is the minimum number of packs needed to buy exactly 90 cans of soda?

- (A) 4
- (B) 5
- (C) 6
- (D) 8
- (E) 15

AMC 8, 2005, Problem 6

Suppose d is a digit. For how many values of d is $2.00d5 > 2.005$?

- (A) 0
- (B) 4
- (C) 5
- (D) 6
- (E) 10

AMC 8, 2005, Problem 7

Bill walks $\frac{1}{2}$ mile south, then $\frac{3}{4}$ mile east, and finally $\frac{1}{2}$ mile south. How many miles is he, in a direct line, from his starting point?

- (A) 1
- (B) $1\frac{1}{4}$
- (C) $1\frac{1}{2}$
- (D) $1\frac{3}{4}$
- (E) 2

AMC 8, 2005, Problem 8

Suppose m and n are positive odd integers. Which of the following must also be an odd integer?

- (A) $m + 3n$
- (B) $3m - n$
- (C) $3m^2 + 3n^2$
- (D) $(nm + 3)^2$
- (E) $3mn$

AMC 8, 2005, Problem 10

Joe had walked half way from home to school when he realized he was late. He ran the rest of the way to school. He ran 3 times as fast as he walked. Joe took 6 minutes to walk half way to school. How many minutes did it take Joe to get from home to school?

- (A) 7
- (B) 7.3
- (C) 7.7
- (D) 8
- (E) 8.3

AMC 8, 2005, Problem 11

The sales tax rate in Bergville is 6%. During a sale at the Bergville Coat Closet, the price of a coat is discounted 20% from its \$90.00 price. Two clerks, Jack and Jill, calculate the bill independently. Jack brings up \$90.00 and adds 6% sales tax, then subtracts 20% from this total. Jill rings up \$90.00, subtracts 20% of the price, then adds 6% of the discounted price for sales tax. What is Jack's total minus Jill's total?

- (A) $-\$1.06$
- (B) $-\$0.53$
- (C) 0
- (D) \$0.53
- (E) \$1.06

AMC 8, 2005, Problem 12

Big Al the ape ate 100 delicious yellow bananas from May 1 through May 5. Each day he ate six more bananas than on the previous day. How many delicious bananas did Big Al eat on May 5?

- (A) 20



- (B) 22
- (C) 30
- (D) 32
- (E) 34

AMC 8, 2005, Problem 14

The Little Twelve Basketball League has two divisions, with six teams in each division. Each team plays each of the other teams in its own division twice and every team in the other division once. How many games are scheduled?

- (A) 80
- (B) 96
- (C) 100
- (D) 108
- (E) 192

AMC 8, 2005, Problem 15

How many different isosceles triangles have integer side lengths and perimeter 23?

- (A) 2
- (B) 4
- (C) 6
- (D) 9
- (E) 11

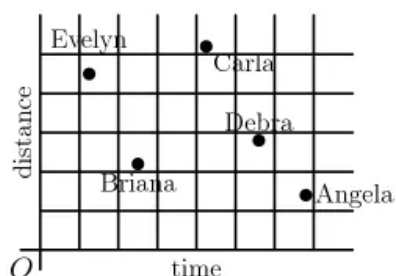
AMC 8, 2005, Problem 16

A five-legged Martian has a drawer full of socks, each of which is red, white or blue, and there are at least five socks of each color. The Martian pulls out one sock at a time without looking. How many socks must the Martian remove from the drawer to be certain there will be 5 socks of the same color?

- (A) 6
- (B) 9
- (C) 12
- (D) 13
- (E) 15

AMC 8, 2005, Problem 17

The results of a cross-country team's training run are graphed below. Which student has the greatest average speed?





- (A) Angela
- (B) Briana
- (C) Carla
- (D) Debra
- (E) Evelyn

AMC 8, 2005, Problem 18

How many three-digit numbers are divisible by 13?

- (A) 7
- (B) 67
- (C) 69
- (D) 76
- (E) 77

AMC 8, 2004, Problem 1

On a map, a 12-centimeter length represents 72 kilometers. How many kilometers does a 17 -centimeter length represent?

- (A) 6
- (B) 102
- (C) 204
- (D) 864
- (E) 1224

AMC 8, 2004, Problem 2

How many different four-digit numbers can be formed by rearranging the four digits in 2004?

- (A) 4
- (B) 6
- (C) 16
- (D) 24
- (E) 81

AMC 8, 2004, Problem 3

Twelve friends met for dinner at Oscar's Overstuffed Oyster House, and each ordered one meal. The portions were so large, there was enough food for 18 people. If they shared, how many meals should they have ordered to have just enough food for the 12 of them?

- (A) 8
- (B) 9
- (C) 10
- (D) 15
- (E) 18

AMC 8, 2004, Problem 6

After Sally takes 20 shots, she has made 55% of her shots. After she takes 5 more shots, she raises her percentage to 56%. How many of the last 5 shots did she make?

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

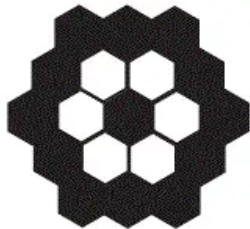
AMC 8, 2004, Problem 7

An athlete's target heart rate, in beats per minute, is 80% of the theoretical maximum heart rate. The maximum heart rate is found by subtracting the athlete's age, in years, from 220. To the nearest whole number, what is the target heart rate of an athlete who is 26 years old?

- (A) 134
- (B) 155
- (C) 176
- (D) 194
- (E) 243

AMC 8, 2004, Problem 15

Thirteen black and six white hexagonal tiles were used to create the figure below. If a new figure is created by attaching a border of white tiles with the same size and shape as the others, what will be the difference between the total number of white tiles and the total number of black tiles in the new figure?



- (A) 5
- (B) 7
- (C) 11
- (D) 12
- (E) 18

AMC 8, 2004, Problem 16

Two 600 mL pitchers contain orange juice. One pitcher is $\frac{1}{3}$ full and the other pitcher is $\frac{2}{5}$ full. Water is added to fill each pitcher completely, then both pitchers are poured into one large container. What fraction of the mixture in the large container is orange juice?

- (A) $\frac{1}{8}$
- (B) $\frac{3}{16}$
- (C) $\frac{11}{30}$

- (D) $\frac{11}{19}$
(E) $\frac{11}{15}$

AMC 8, 2004, Problem 19

A whole number larger than 2 leaves a remainder of 2 when divided by each of the numbers 3, 4, 5, and 6. The smallest such number lies between which two numbers?

- (A) 40 and 49
(B) 60 and 79
(C) 100 and 129
(D) 210 and 249
(E) 320 and 369

AMC 8, 2004, Problem 22

At a party, there are only single women and married men with their wives. The probability that a randomly selected woman is single is $\frac{2}{5}$. What fraction of the people in the room are married men?

- (A) $\frac{1}{3}$
(B) $\frac{3}{8}$
(C) $\frac{2}{5}$
(D) $\frac{5}{12}$
(E) $\frac{3}{5}$

AMC 8, 2003, Problem 1

Jamie counted the number of edges of a cube, Jimmy counted the numbers of corners, and Judy counted the number of faces. They then added the three numbers. What was the resulting sum?

- (A) 12
(B) 16
(C) 20
(D) 22
(E) 26

AMC 8, 2003, Problem 2

Which of the following numbers has the smallest prime factor?

- (A) 55
(B) 57
(C) 58
(D) 59
(E) 61

AMC 8, 2003, Problem 3

A burger at Ricky C's weighs 120 grams, of which 30 grams are filler. What percent of the burger is not filler?

- (A) 60%



- (B) 65%
- (C) 70%
- (D) 75%
- (E) 90%

AMC 8, 2003, Problem 4

A burger at Ricky C's weighs 120 grams, of which 30 grams are filler. What percent of the burger is not filler?

- (A) 60%
- (B) 65%
- (C) 70%
- (D) 75%
- (E) 90%

AMC 8, 2003, Problem 5

A group of children riding on bicycles and tricycles rode past Billy Bob's house. Billy Bob counted 7 children and 19 wheels. How many tricycles were there?

- (A) 2
- (B) 4
- (C) 5
- (D) 6
- (E) 7

AMC 8, 2003, Problem 6

If 20% of a number is 12, what is 30% of the same number?

- (A) 15
- (B) 18
- (C) 20
- (D) 24
- (E) 30

AMC 8, 2003, Problem 7

Blake and Jenny each took four 100 -point tests. Blake averaged 78 on the four tests. Jenny scored 10 points higher than Blake on the first test, 10 points lower than him on the second test, and 20 points higher on both the third and fourth tests. What is the difference between Jenny's average and Blake's average on these four tests?

- (A) 10
- (B) 15
- (C) 20
- (D) 25
- (E) 40

AMC 8, 2003, Problem 9

Each friend uses the same amount of dough, and Art makes exactly 12 cookies. Art's cookies sell for 60¢. If Roger's cookies earn the same amount from a single batch, how much should one of Roger's cookies cost in cents?

- (A) 18
- (B) 25
- (C) 40
- (D) 75
- (E) 90

AMC 8, 2003, Problem 11

Business is a little slow at Lou's Fine Shoes, so Lou decides to have a sale. On Friday, Lou increases all of Thursday's prices by 10%. Over the weekend, Lou advertises the sale: "Ten percent off the listed price. Sale starts Monday." How much does a pair of shoes cost on Monday that cost 40 dollars on Thursday?

- (A) 36
- (B) 39.60
- (C) 40
- (D) 40.40
- (E) 44

AMC 8, 2003, Problem 19

How many integers between 1000 and 2000 have all three of the numbers 15, 20, and 25 as factors?

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

AMC 8, 2003, Problem 20

What is the measure of the acute angle formed by the hands of the clock at 4 : 20PM ?

- (A) 0
- (B) 5
- (C) 8
- (D) 10
- (E) 12

AMC 8, 2002, Problem 4

The year 2002 is a palindrome (a number that reads the same from left to right as it does from right to left). What is the product of the digits of the next year after 2002 that is a palindrome?

- (A) 0
- (B) 4
- (C) 9

(D) 16

(E) 25

AMC 8, 2002, Problem 13

For his birthday, Bert gets a box that holds 125 jellybeans when filled to capacity. A few weeks later, Carrie gets a larger box full of jellybeans. Her box is twice as high, twice as wide and twice as long as Bert's. Approximately, how many jellybeans did Carrie get?

(A) 250

(B) 500

(C) 625

(D) 750

(E) 1000

AMC 8, 2002, Problem 14

A merchant offers a large group of items at 30% off. Later, the merchant takes 20% off these sale prices and claims that the final price of these items is 50% off the original price. The total discount is

(A) 35%

(B) 44%

(C) 50%

(D) 56%

(E) 60%

AMC 8, 2002, Problem 18

Gage skated 1 hr 15 min each day for 5 days and 1 hr 30 min each day for 3 days. How long would he have to skate the ninth day in order to average 85 minutes of skating each day for the entire time?

(A) 1hr

(B) 1 hr 10 min

(C) 1 hr 20 min

(D) 1hr40 min

(E) 2hr

AMC 8, 2002, Problem 19

How many whole numbers between 99 and 999 contain exactly one 0 ?

(A) 72

(B) 90

(C) 144

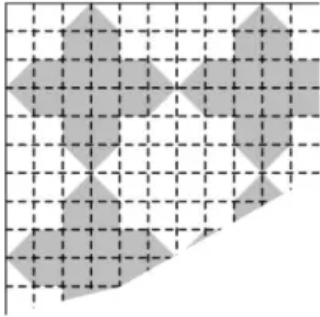
(D) 162

(E) 180

AMC 8, 2002, Problem 23



A corner of a tiled floor is shown. If the entire floor is tiled in this way and each of the four corners look then what fraction of the tiled floor is made of darker tiles?



- (A) $\frac{1}{3}$
- (B) $\frac{4}{9}$
- (C) $\frac{1}{2}$
- (1) $\frac{5}{9}$
- (b) $\frac{5}{8}$

AMC 8, 2002, Problem 24

Miki has a dozen oranges of the same size and a dozen pears of the same size. Miki uses her juicer to extract 8 ounces of pear juice from 3 pears and 8 ounces of orange juice from 2 oranges. She makes a pear-orange juice blend from an equal number of pears and oranges. What percent of the blend is pear juice?

- (A) 30
- (B) 40
- (C) 50
- (D) 60
- (E) 70

AMC 8, 2002, Problem 25

Loki, Moe, Nick and Ott are good friends. Ott had no money, but the others did. Moe gave ott one-fifth of his money, Loki gave ott one-fourth of his money and Nick gave ott one-third of his money. Each gave ott the same amount of money. What fractional part of the group's money does Ott now have?

- (A) $\frac{1}{10}$
- (B) $\frac{1}{4}$
- (C) $\frac{1}{3}$
- (D) $\frac{2}{5}$
- (E) $\frac{1}{2}$

AMC 8, 2001, Problem 1

Casey's shop class is making a golf trophy. He has to paint 300 dimples on a golf ball. If it takes him 2 seconds to paint one dimple, how many minutes will he need to do his job?

- (A) 4
- (B) 6

- (C) 8
- (D) 10
- (E) 12

AMC 8, 2001, Problem 2

I'm thinking of two whole numbers. Their product is 24 and their sum is 11 . What is the larger number?

- (A) 3
- (B) 4
- (C) 6
- (D) 8
- (E) 12

AMC 8, 2001, Problem 3

Granny Smith has \$63. Elberta has \$2 more than Anjou and Anjou has one-third as much as Granny Smith. How many dollars does Elberta have?

- (A) 17
- (B) 18
- (C) 19
- (D) 21
- (E) 23

AMC 8, 2001, Problem 4

The digits 1, 2, 3, 4 and 9 are each used once to form the smallest possible even five-digit number. The digit in the tens place is

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 9

AMC 8, 2001, Problem 5

On a dark and stormy night Snoopy suddenly saw a flash of lightning. Ten seconds later, he heard the sound of thunder. The speed of sound is 1088 feet per second and one mile is 5280 feet. Estimated, to the nearest half-mile, how far Snoopy was from the flash of lightning?

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

AMC 8, 2001, Problem 6

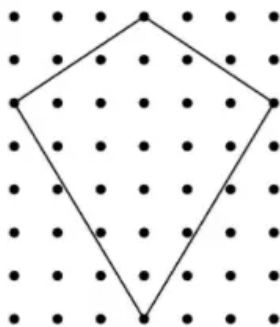


Six trees are equally spaced along one side of a straight road. The distance from the first tree to the fourth tree is 90 feet. What is the distance in feet between the first and last trees?

- (A) 90
- (B) 100
- (C) 105
- (D) 120
- (E) 140

AMC 8, 2001, Problem 7

To promote her school's annual Kite Olympics, Genevieve makes a small kite and a large kite for a bulletin board display. The kites look like the one in the diagram below. For her small kite Genevieve draws the kite on a one-inch grid. For the large kite she triples both the height and width of the entire grid.

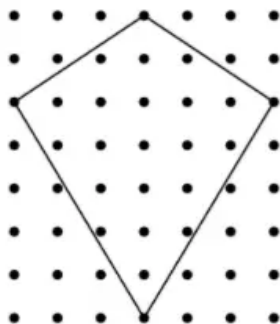


What is the number of square inches in the area of the small kite?

- (A) 21
- (B) 22
- (C) 23
- (D) 24
- (E) 25

AMC 8, 2001, Problem 8

To promote her school's annual Kite Olympics, Genevieve makes a small kite and a large kite for a bulletin board display. The kites look like the one in the diagram below. For her small kite Genevieve draws the kite on a one-inch grid. For the large kite she triples both the height and width of the entire grid.



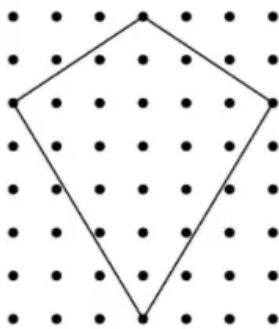


Genevieve puts bracing on her large kite in the form of a cross connecting opposite corners of the kite. . . of bracing material does she need?

- (A) 30
- (B) 32
- (C) 35
- (D) 38
- (E) 39

AMC 8, 2001, Problem 9

To promote her school's annual Kite Olympics, Genevieve makes a small kite and a large kite for a bulletin board display. The kites look like the one in the diagram below. For her small kite Genevieve draws the kite on a one-inch grid. For the large kite she triples both the height and width of the entire grid.



The large kite is covered with gold foil. The foil is cut from a rectangular piece that just covers the entire grid. How many square inches of waste material are cut off from the four corners?

- (A) 63
- (B) 72
- (C) 180
- (D) 189 (E) 264

AMC 8, 2001, Problem 10

A collector offers to buy state quarters for 2000% of their face value. At that rate how much will Bryden get for his four state quarters?

- (A) 20 dollars
- (B) 50 dollars
- (C) 200 dollars
- (D) 500 dollars
- (E) 2000 dollars

AMC 8, 2001, Problem 13

Of the 36 students in Richelle's class, 12 prefer chocolate pie, 8 prefer apple, and 6 prefer blueberry. Half of the remaining students prefer cherry pie and half prefer lemon. For Richelle's pie graph showing this data, how many degrees should she use for cherry pie?

- (A) 10



- (B) 20
- (C) 30
- (D) 50
- (E) 72

AMC 8, 2001, Problem 15

Homer began peeling a pile of 44 potatoes at the rate of 3 potatoes per minute. Four minutes later Christen joined him and peeled at the rate of 5 potatoes per minute. When they finished, how many potatoes had Christen peeled?

- (A) 20
- (B) 24
- (C) 32
- (D) 33
- (E) 40

AMC 8, 2001, Problem 25

There are 24 four-digit whole numbers that use each of the four digits 2, 4, 5 and 7 exactly once. Only one of these four-digit numbers is a multiple of another one. Which of the following is it?

- (A) 5724
- (B) 7245
- (C) 7254
- (D) 7425
- (E) 7542

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