AMC 8 2025

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1 The eight pointed star is a popular quilting pattern. What percent of the entire 4-by-4 grid is covered by the star? $(A) 40 \quad (B) 50 \quad (C) 60 \quad (D) 75 \quad (E) 80$

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3 Buffalo Shuffle-o is a card game in which all the cards are distributed evenly among all players at the start of the game. When Annika and 3 of her friends play Buffalo Shuffle-o, each player is dealt 15 cards. Suppose 2 more friends join the next game. How many cards will be dealt to each player?

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

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4 Lucius is counting backwards by 7s. His first three numbers are 100, 93, and 86. What is his 10th number?

(A) 30 **(B)** 37 **(C)** 42 **(D)** 44 **(E)** 47

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7 On the most recent exam in Prof. Xochi's class,

- 5 students earned a score of at least 95%
- 13 students earned a socre of at least 90%
- 27 students earned a score of at least 85%
- 50 students earned a score of at least 80%.

How many students earned a score of at least 80% and less than 90%?

(A) 8 **(B)** 14 **(C)** 22 **(D)** 37 **(E)** 45

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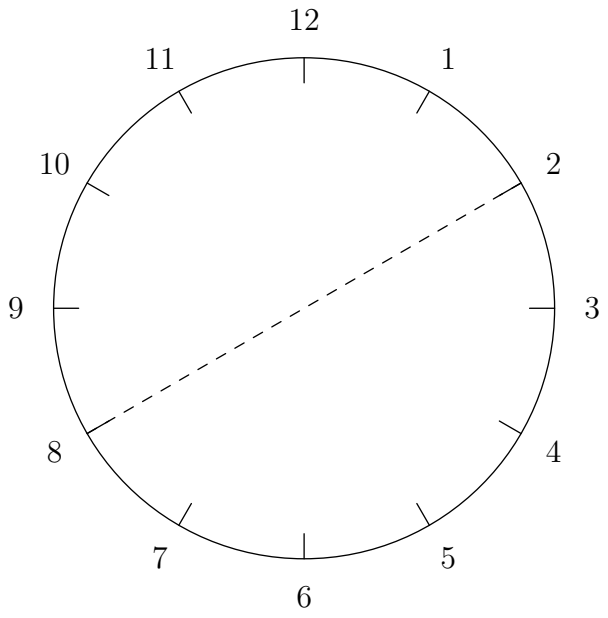
9 Nigli looks at the 6 pairs of numbers directly across from each other on a clock. She takes the average of each pair of numbers. What is the average of the resulting 6 numbers?



(A) 5 **(B)** 6.5 **(C)** 8 **(D)** 9.5 **(E)** 12

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10 In the figure below, $ABCD$ is a rectangle with sides of length $AB = 5$ inches and $AD = 3$ inches. Rectangle $ABCD$ is rotated 90° clockwise about the midpoint of side $\overline{DC}$ to give a second rectangle. What is the total area, in square inches, covered by the two overlapping rectangles?
`https://i.imgur.com/NyhZpL6.png` **(A)** 21 **(B)** 22.25 **(C)** 23 **(D)** 23.75 **(E)** 25

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11 A *tetromino* consists of four squares connected along their edges. There are five possible tetromino shapes, I, O, L, T, S, shown below, which can be rotated or flipped over. Three tetrominos are used to completely cover a 3×4 rectangle. At least one of the titles is an S tile. What are the other two tiles?
`https://i.imgur.com/9Nxq4y6.png` **(A)** I and L **(B)** I and T **(C)** L and L **(D)** L and S **(E)** O a

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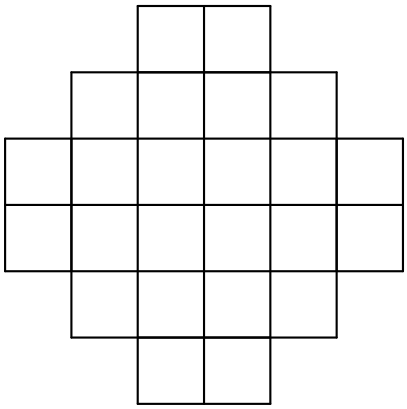
12 The region shown below consists of 24 squares, each with side length 1 centimeter. What is the area, in square centimeters, of the largest circle that can fit inside the region, possibly touching the boundaries?



(Thanks to zhenghua for the diagram!)

(A) 3π (B) 4π (C) 5π (D) 6π (E) 8π

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13 Each of the even numbers $2, 4, 6, \ldots, 50$ is divided by 7. The remainders are recorded. Which histogram displays the number of times each remainder appears?
`https://i.imgur.com/f1oQExa.png`

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14 A number N is inserted into the list $2, 6, 7, 7, 28$. The mean is now twice as great as the median. What is N?

(A) 7 **(B)** 14 **(C)** 20 **(D)** 28 **(E)** 34

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15 Kei draws a 6×6 grid. He colors 13 of the unit squares silver and the remaining squares gold. Kei then folds the grid in half vertically, forming pairs of overlapping unit squares. Let m and M the least and greatest possible number of gold-on-gold pairs, respectively. What is $m + M$?
(A) 12 **(B)** 14 **(C)** 16 **(D)** 18 **(E)** 20

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16 Five distinct integers from 1 to 10 are chosen, and five distinct integers from 11 to 20 are chosen. No two numbers differ by exactly 10. What is the sum of the 10 chosen numbers? **(A)** 95 **(B)** 100 **(C)** 10

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19 Two towns, A and B, are connected by a straight road, 15 miles long. Traveling from town A to town B, the speed limit changes every 5 miles: from 25 to 40 to 20 miles per hour (mph). Two cars, one at town A and one at town B, start moving toward each other at the same time. They drive exactly the speed limit in each portion of the road. How far from town A, in miles, will the two cars meet? **(A)** 7.75 **(B)** 8 **(C)** 8.25 **(D)** 8.5 **(E)** 8.75

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20 Sarika, Dev, and Rajiv are sharing a large block of cheese. They take turns cutting off half of what remains and eating it: first Sarika eats half of the cheese, then Dev eats half of the remaining

half, then Rajiv eats half of what remains, then back to Sarika, and so on. They stop when the cheese is too small to see. About what fraction of the original block of cheese does Sarika eat in total?

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

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21 The Konigsberg School has assigned grades 1 through 7 to pods A through G, one grade per pod. The school noticed that each pair of connected pods has been assigned grades differing by 2 or more grade levels. (For example, grades 1 and 2 will not be in pods directly connected by a walkway.) What is the sum of the grade levels assigned to pods $C, E,$ and F?
(A) 12 **(B)** 13 **(C)** 14 **(D)** 15 **(E)** 16

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22 A classroom has a row of 35 coat hooks. Paulina likes coats to be equally spaced, so that there is the same number of empty hooks before the first coat, after the last coat, and between every coat and the next one. Suppose there is at least 1 coat and at least 1 empty hook. How many different numbers of coats can satisfy Paulina's pattern? **(A)** 2 **(B)** 4 **(C)** 5 **(D)** 7 **(E)** 9

(need visuals)

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23 How many four-digit numbers have all three of the following properties?
(I) The tens digit and ones digit are both 9.
(II) The number is 1 less than a perfect square.
(III) The number is the product of exactly two prime numbers.

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

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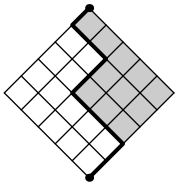
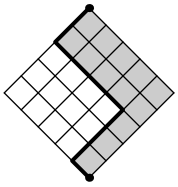
25 Makayla finds all the possible ways to draw a path in a 5 x 5 diamond-shaped grid. Each path starts at the bottom of the grid and ends at the top, always moving one unit northeast or northwest. She computes the area of the region between each path and the right side of the grid. Two examples are shown in the figures below. What is the sum of the areas determined by all possible paths?



$\text{area} = 11$



$\text{area} = 13$

(Thanks to zhenghua for the diagram!)

(A) 2520 (B) 3150 (C) 3840 (D) 4730 (E) 5050