

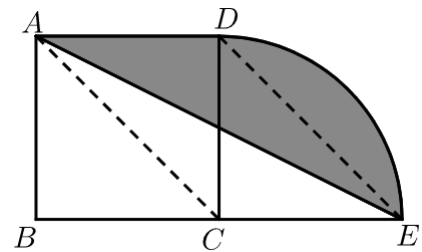
2024 AMC Oct 8 Mock

1 (1分) What is the value of $(25 + 4 \times 5 \div 10) - (25 \times 4 \div 5 + 10)$?

- A. -13 B. -3 C. 0 D. 3 E. 19

2 (1分) As shown in the figure, the area length of square $ABCD$ is 16 , and $BC = CE$.

What is the area of the shaded region in the figure?



- A. π B. 4π C. 8π D. 16π E. 64π

3 (1分) The average of 5 numbers is 70. If one of the numbers is changed to 90, the new average of the 5 numbers becomes 80. What was the original value of the number that was changed?

- A. 40 B. 50 C. 70 D. 80

4 (1分) It takes George $\frac{3}{4}$ minutes to climb from the 1st floor to the 3rd floor. With the constant speed, how many seconds will it take him to climb from the 3rd floor to the 10th floor?

A. $\frac{3}{2}$

B. $\frac{7}{4}$

C. $\frac{315}{2}$

D. 105

E. 90

5 (1分) Alice has 3 email addresses. She wants to send 5 different emails. How many different ways can she send them?

A. 8

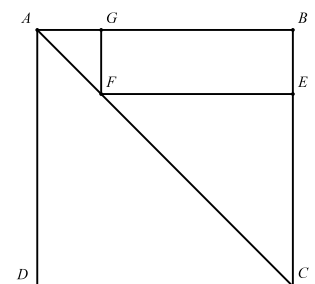
B. 15

C. 25

D. 243

E. 125

6 (1分) As shown in the figure, square $ABCD$ is a garden divided into four parts: one rectangular area for planting roses and three triangular areas for planting tulips. Given that the perimeter of the entire square garden is 300 ft, what is the perimeter of the area used for planting roses?



A. 75 ft

B. 100 ft

C. 125 ft

D. 150 ft

E. 175 ft

7 (1分) A product is on an end-of-season sale. The shop will suffer a loss of \$20 if the product is sold at a discount of 30%, but will have a profit of \$25 if the product is sold at a discount of 20%. What is the original selling price of the product?

- A. 300 B. 325 C. 375 D. 450 E. 475

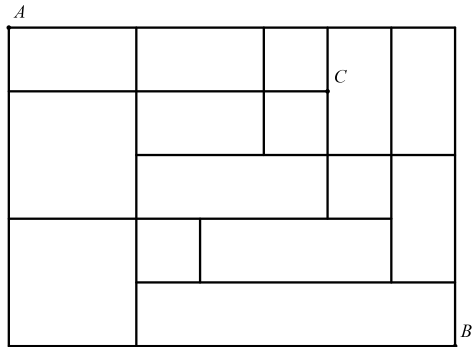
8 (1分) In a row of 10 seats, some seats are already occupied. If one more person arrives and, no matter where they sit, they will always be adjacent to at least one person, what is the minimum number of people that were already seated?

- A. 3 B. 4 C. 5 D. 6 E. 7

9 (1分) $\frac{1}{14 \times 38} + \frac{1}{24 \times 34} + \frac{1}{38 \times 24} + \frac{1}{34 \times 10} = \underline{\hspace{2cm}} .$

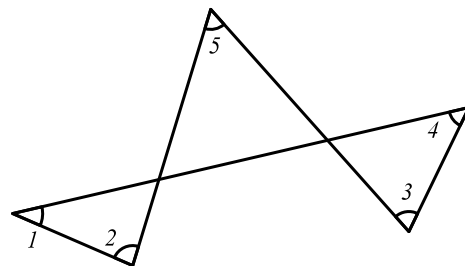
- A. $\frac{1}{34}$ B. $\frac{1}{140}$ C. $\frac{1}{38}$ D. $\frac{1}{24}$
E. $\frac{1}{340}$

- 10 (1分) The road distribution map of a certain area is shown in the figure (all roads run only in east-west and north-south directions). If one always chooses the shortest route, and the trip must go from point A to point C before heading to point B, how many different route choices are there?



- A. 8 B. 12 C. 24 D. 28 E. 43

- 11 (1分) $m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 - m\angle 5 = \underline{\hspace{2cm}}$.



- A. 0° B. 90° C. 180° D. 270° E. 360°

12 (1分) Amy and Betty are running. If Amy lets Betty run **24** meters ahead, Amy can catch up to Betty in **5** seconds. If Betty starts **6** seconds before Amy, Amy can also catch up to Betty after running for **6** seconds. How many meters does Betty run per second?

- A. **3.2 m/s** B. **4.8 m/s** C. **6.4 m/s** D. **7.2 m/s**
E. **9.6 m/s**

13 (1分) Bob needs to know the weight (in pounds) of the heaviest of three boxes he is mailing. However, the only available scale is inaccurate for boxes weighing less than **100** pounds or more than **200** pounds. So the boxes are weighed in pairs in every possible way. The results are **142**, **157**, and **169** pounds. How many pounds is the heaviest of the three boxes?

- A. **65** B. **77** C. **78** D. **92** E. **94**

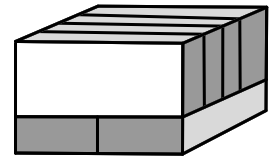
14 (1分) What is the unit digit of $\left(\left(\left(\left(2024^{2023}\right)^{2022}\right)^{2021}\right)^{\cdots}\right)^1$?

- A. **0** B. **2** C. **4** D. **6** E. **8**

15 (1分) Lucas has 3 chocolate candies, 4 milk candies, and 5 fruit candies, with the only difference between candies being the flavor. He decides to eat one candy per day, ensuring that he eats a different type of candy on consecutive days. How many different ways can he eat the candies over the first four days?

- A. 12 B. 16 C. 18 D. 24 E. 32

16 (1分) As shown in the figure, 6 identical small rectangular prisms are combined to form a larger rectangular prism with a volume of 6 cubic feet. What is the total length of all the edges of the larger rectangular prism in feet?



- A. 11 B. 12 C. 16 D. 18 E. 22

17 (1分) The bookstore sells notebooks costing a whole number of cents. Some fifth graders each bought a notebook, paying a total of 4.83 dollars. Some of the 30 fourth graders each bought a notebook, and they paid a total of 2.3 dollars. How many more fifth graders than fourth graders bought a notebook?

- A. 7 B. 11 C. 14 D. 15 E. 17

18 (1分) In a mathematics competition, the ratio between Grade 6 and Grade 7 participants was 4 : 3. 728 participants got a prize. The ratio between Grade 6 and Grade 7 winners was 8 : 5, whereas the ratio between Grade 6 and Grade 7 participants who did

not get a prize was $3 : 4$. How many participants are in this competition?

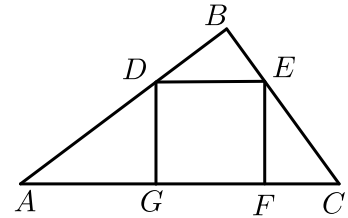
- A. 948 B. 952 C. 956 D. 960 E. 964

19

(1分) Selena and Joy are participating in a team math competition. The probability that Selena answers a question correctly is 0.5 , and the probability that Joy answers a question correctly is 0.6 . The two do not affect each other. If Selena and Joy each complete 2 questions, what is the probability that both Selena and Joy answer exactly one question correctly?

- A. $\frac{9}{20}$ B. $\frac{6}{25}$ C. $\frac{11}{50}$ D. $\frac{9}{50}$
E. $\frac{13}{20}$

- 20 (1分) There is a right triangle ABC with the legs $AB = 4$ feet, $BC = 3$ feet, and $\angle B = 90^\circ$. A square is to be cut from it as shown in the figure. What is the side length of the square?



- A. $\frac{6}{7}$ B. $\frac{30}{37}$ C. $\frac{12}{7}$ D. $\frac{60}{37}$

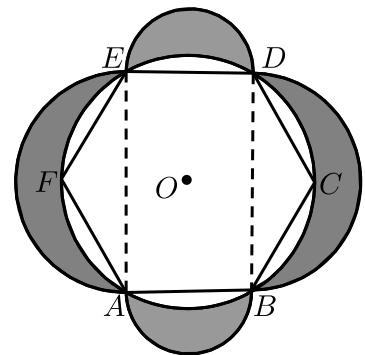
- 21 (1分) Assuming there is a month in a certain year where three Sundays fall on odd-numbered dates, on which day of the week could the 20th of that month be?

- A. Tuesday B. Monday or Wednesday
C. Thursday or Sunday D. Friday or Wednesday
E. Tuesday, Friday or Sunday

22 (1分) For the smallest three consecutive positive intergers whose sum ends with the digits **2011**, find the sum of digits of the smallest of these three consecutive positive integers.

- A. 15 B. 16 C. 17 D. 18 E. 19

23 (1分) In the diagram, the area of the inscribed regular hexagon $ABCDEF$ is 18 square feet. Four semicircles are drawn outward with AB , BD , DE , and EA as diameters. What is the total area of the shaded regions?



- A. 6 B. 9 C. 12 D. 18 E. 15

24 (1分) Among the positive integers that have exactly 100 factors, how many prime factors does the smallest one have?

- A. 1 B. 2 C. 3 D. 4 E. 5

25 (1分) What is the probability of randomly selecting an integer between 1 and 10000, inclusive, that is neither a perfect square nor a perfect cube?

- A. $\frac{99}{100}$ B. $\frac{9875}{10000}$ C. $\frac{9879}{10000}$ D. $\frac{9883}{10000}$
E. $\frac{9889}{10000}$