



# 2018 AMC 8

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**Question 1**

Not yet answered

Points out of 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

Select one:

- A
- B
- C
- D
- E

**Question 2**

Not yet answered

Points out of 1

What is the value of the product

$$\left(1 + \frac{1}{1}\right) \cdot \left(1 + \frac{1}{2}\right) \cdot \left(1 + \frac{1}{3}\right) \cdot \left(1 + \frac{1}{4}\right) \cdot \left(1 + \frac{1}{5}\right) \cdot \left(1 + \frac{1}{6}\right)?$$

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

Select one:

- A
- B
- C
- D
- E

**Question 3**

Not yet answered

Points out of 1

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

Select one:

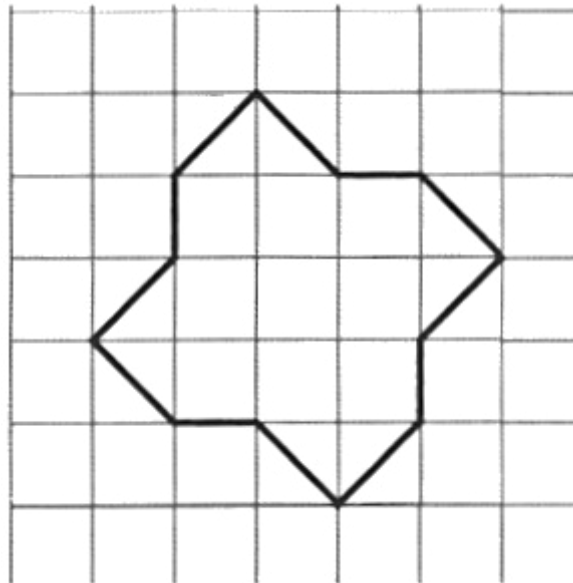
- A
- B
- C
- D
- E

**Question 4**

Not yet answered

Points out of 1

The twelve-sided figure shown has been drawn on 1 cm  $\times$  1 cm graph paper. What is the area of the figure in  $\text{cm}^2$ ?



(A) 12    (B) 12.5    (C) 13    (D) 13.5    (E) 14

Select one:

- A
- B
- C
- D
- E

**Question 5**

Not yet answered

Points out of 1

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)  $1010$

Select one:

- A
- B
- C
- D
- E

**Question 6**

Not yet answered

Points out of 1

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

Select one:

- A
- B
- C
- D
- E

**Question 7**

Not yet answered

Points out of 1

The 5-digit number  $\underline{2018U}$  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

Select one:

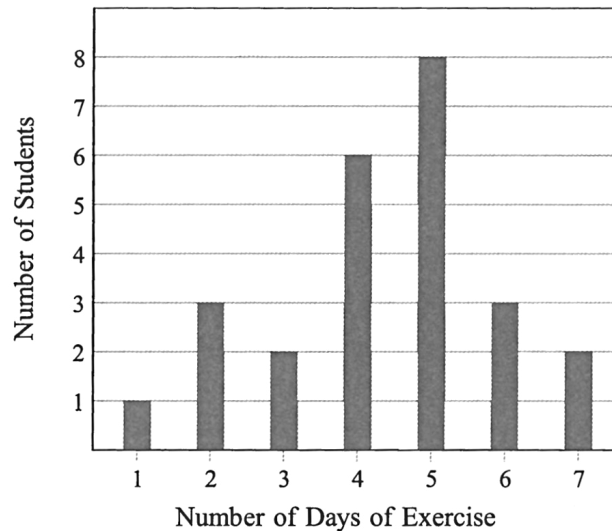
- A
- B
- C
- D
- E

**Question 8**

Not yet answered

Points out of 1

Mr. Garcia asked the members of his health class how many days last week they exercised for at least 30 minutes. The results are summarized in the following bar graph, where the heights of the bars represent the number of students.



What was the mean number of days of exercise last week, rounded to the nearest hundredth, reported by the students in Mr. Garcia's class?

- (A) 3.50    (B) 3.57    (C) 4.36    (D) 4.50    (E) 5.00

Select one:

- A  
 B  
 C  
 D  
 E

**Question 9**

Not yet answered

Points out of 1

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

Select one:

- A  
 B  
 C  
 D  
 E

**Question 10**

Not yet answered

Points out of 1

The harmonic mean of a set of non-zero numbers is the reciprocal of the average of the reciprocals of the numbers. What is the harmonic mean of 1, 2, and 4?

- (A)  $\frac{3}{7}$     (B)  $\frac{7}{12}$     (C)  $\frac{12}{7}$     (D)  $\frac{7}{4}$     (E)  $\frac{7}{3}$

Select one:

- A  
 B  
 C  
 D  
 E

**Question 11**

Not yet answered

Points out of 1

Abby, Bridget, and four of their classmates will be seated in two rows of three for a group picture, as shown.

$$\begin{array}{ccc} X & X & X \\ X & X & X \end{array}$$

If the seating positions are assigned randomly, what is the probability that Abby and Bridget are adjacent to each other in the same row or the same column?

- (A)  $\frac{1}{3}$     (B)  $\frac{2}{5}$     (C)  $\frac{7}{15}$     (D)  $\frac{1}{2}$     (E)  $\frac{2}{3}$

Select one:

- A  
 B  
 C  
 D  
 E

**Question 12**

Not yet answered

Points out of 1

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 is the actual time?

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

Select one:

- A
- B
- C
- D
- E

**Question 13**

Not yet answered

Points out of 1

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

Select one:

- A
- B
- C
- D
- E

**Question 14**

Not yet answered

Points out of 1

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

Select one:

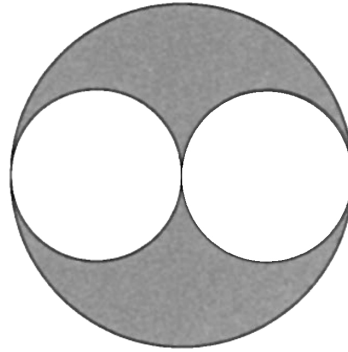
- A
- B
- C
- D
- E

**Question 15**

Not yet answered

Points out of 1

In the diagram below, a diameter of each of the two smaller circles is a radius of the larger circle. If the two smaller circles have a combined area of 1 square unit, then what is the area of the shaded region, in square units?



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

Select one:

- A  
 B  
 C  
 D  
 E

**Question 16**

Not yet answered

Points out of 1

Professor Chang has nine different language books lined up on a bookshelf: two Arabic, three German, and four Spanish. How many ways are there to arrange the nine books on the shelf keeping the Arabic books together and keeping the Spanish books together?

- (A) 1440    (B) 2880    (C) 5760    (D) 182,440    (E) 362,880

Select one:

- A  
 B  
 C  
 D  
 E



**Question 17**

Not yet answered

Points out of 1

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

Select one:

- A
- B
- C
- D
- E

**Question 18**

Not yet answered

Points out of 1

How many positive factors does 23,232 have?

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

Select one:

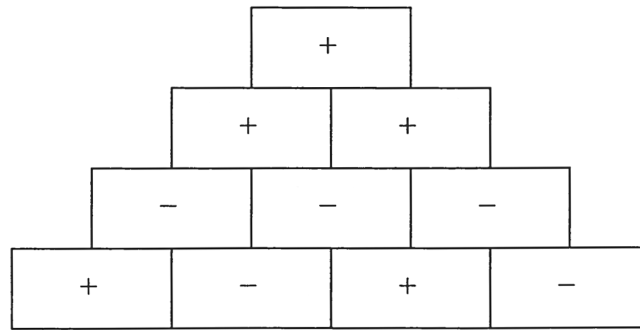
- A
- B
- C
- D
- E

**Question 19**

Not yet answered

Points out of 1

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

Select one:

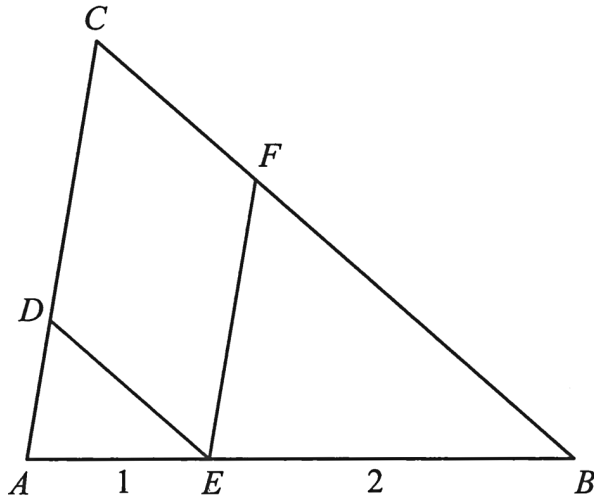
- A
- B
- C
- D
- E

**Question 20**

Not yet answered

Points out of 1

In  $\triangle ABC$ , a point  $E$  is on  $\overline{AB}$  with  $AE = 1$  and  $EB = 2$ . Point  $D$  is on  $\overline{AC}$  so that  $\overline{DE} \parallel \overline{BC}$  and point  $F$  is on  $\overline{BC}$  so that  $\overline{EF} \parallel \overline{AC}$ . What is the ratio of the area of  $CDEF$  to the area of  $\triangle ABC$ ?



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

Select one:

- A  
 B  
 C  
 D  
 E

**Question 21**

Not yet answered

Points out of 1

How many positive three-digit integers have a remainder of 2 when divided by 6, a remainder of 5 when divided by 9, and a remainder of 7 when divided by 11?

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

Select one:

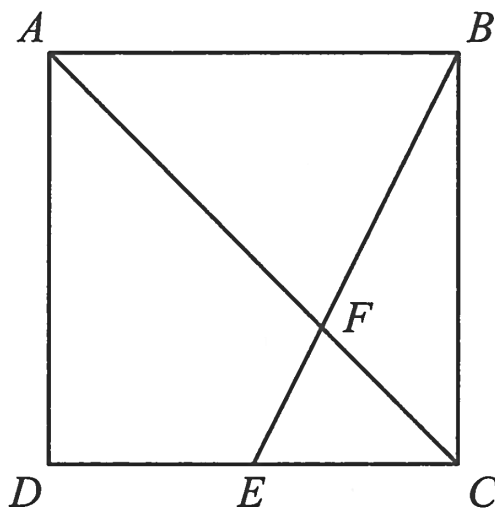
- A  
 B  
 C  
 D  
 E

**Question 22**

Not yet answered

Points out of 1

Point  $E$  is the midpoint of side  $\overline{CD}$  in square  $ABCD$ , and  $\overline{BE}$  meets diagonal  $\overline{AC}$  at  $F$ . The area of quadrilateral  $AFED$  is 45. What is the area of  $ABCD$ ?



- (A) 100    (B) 108    (C) 120    (D) 135    (E) 144

Select one:

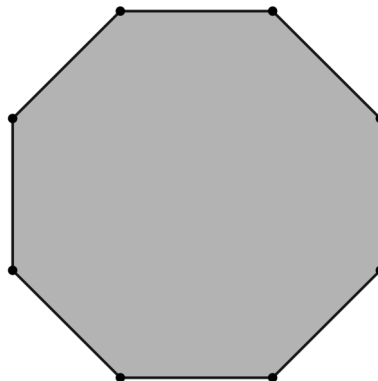
- A
- B
- C
- D
- E

**Question 23**

Not yet answered

Points out of 1

From a regular octagon, a triangle is formed by connecting three randomly chosen vertices of the octagon. What is the probability that at least one of the sides of the triangle is also a side of the octagon?



- (A)  $\frac{2}{7}$       (B)  $\frac{5}{42}$       (C)  $\frac{11}{14}$       (D)  $\frac{5}{7}$       (E)  $\frac{6}{7}$

Select one:

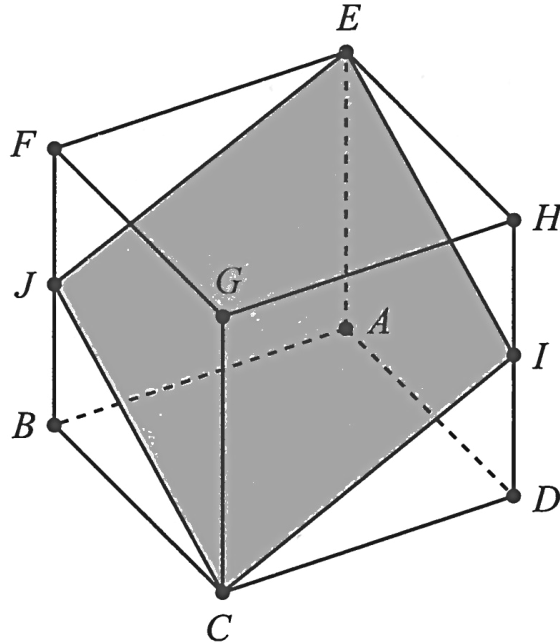
- A
- B
- C
- D
- E

**Question 24**

Not yet answered

Points out of 1

In the cube  $ABCDEFGH$  with opposite vertices  $C$  and  $E$ ,  $J$  and  $I$  are the midpoints of edges  $\overline{FB}$  and  $\overline{HD}$ , respectively. Let  $R$  be the ratio of the area of the cross-section  $EJCI$  to the area of one of the faces of the cube. What is  $R^2$ ?



- (A)  $\frac{5}{4}$     (B)  $\frac{4}{3}$     (C)  $\frac{3}{2}$     (D)  $\frac{25}{16}$     (E)  $\frac{9}{4}$

Select one:

- A  
 B  
 C  
 D  
 E

**Question 25**

Not yet answered

Points out of 1

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

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

Select one:

- A  
 B  
 C  
 D  
 E