UNIT 11 EXERCISES 6-10

STATS

2018A

6. For positive integers m and n such that $m + 10 < n + 1$, both the mean and the median of the set $\{m, m + 4, m + 10, n + 1, n + 2, 2n\}$ are equal to n. What is $m + n$?

(A) 20 **(B)** 21 **(C)** 22 **(D)** 23 **(E)** 24

2011B

7. Let x and y be two-digit positive integers with mean 60. What is the maximum value of the ratio $\frac{x}{y}$?

(A) 3 **(B)** $\frac{33}{7}$ **(C)** $\frac{39}{7}$ **(D)** 9 **(E)** $\frac{99}{10}$

2010B

8. Every high school in the city of Euclid sent a team of 3 students to a math contest. Each participant in the contest received a different score. Andrea's score was the median among all students, and hers was the highest score on her team. Andrea's teammates Beth and Carla placed 37^{th} and 64^{th}, respectively. How many schools are in the city?

(A) 22 **(B)** 23 **(C)** 24 **(D)** 25 **(E)** 26

2012A 8. An *iterative average* of the numbers 1, 2, 3, 4, and 5 is computed in the following way. Arrange the five numbers in some order. Find the mean of the first two numbers, then find the mean of that with the third number, then the mean of that with the fourth number, and finally the mean of that with the fifth number. What is the difference between the largest and smallest possible values that can be obtained using this procedure?

(A) $\frac{31}{16}$ **(B)** 2 **(C)** $\frac{17}{8}$ **(D)** 3 **(E)** $\frac{65}{16}$

2005B 9. On a certain math exam, 10% of the students got 70 points, 25% got 80 points, 20% got 85 points, 15% got 90 points, and the rest got 95 points. What is the difference between the mean and the median score on this exam?

(A) 0 **(B)** 1 **(C)** 2 **(D)** 4 **(E)** 5

1999 9. Before Ashley started a three-hour drive, her car's odometer reading was 29792, a palindrome. (A palindrome is a number that reads the same way from left to right as it does from right to left.) At her destination, the odometer reading was another palindrome. If Ashley never exceeded the speed limit of 75 miles per hour, which of the following was her greatest possible average speed?

(A) $33\frac{1}{3}$ **(B)** $53\frac{1}{3}$ **(C)** $66\frac{2}{3}$ **(D)** $70\frac{1}{3}$ **(E)** $74\frac{1}{3}$

2004A 10. The sum of 49 consecutive integers is 7^5. What is their median?

(A) 7 **(B)** 7^2 **(C)** 7^3 **(D)** 7^4 **(E)** 7^5

2010B 10. The average of the numbers $1, 2, 3, \ldots, 98, 99$, and x is $100x$. What is x?

(A) $\frac{49}{101}$ **(B)** $\frac{50}{101}$ **(C)** $\frac{1}{2}$ **(D)** $\frac{51}{101}$ **(E)** $\frac{50}{99}$

2018B

10. A list of 2018 positive integers has a unique mode, which occurs exactly 10 times. What is the least number of distinct values that can occur in the list?

(A) 202 **(B)** 223 **(C)** 224 **(D)** 225 **(E)** 234