1996 Q12

12. What number should be removed from the list

$$1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11$$

so that the average of the remaining numbers is 6.1?

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

12. **(B)** The sum of the eleven numbers is 66. For the average of ten numbers to be 6.1, the sum of the ten numbers must be $10 \times 6.1 = 61$. Thus, remove the 5.

2001 Q13

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?
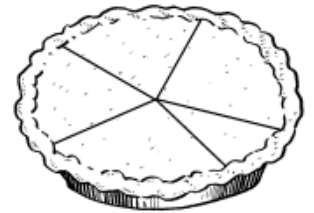
(A) 10   (B) 20   (C) 30   (D) 50   (E) 72

1999 Q13

13. The average age of the 40 members of a computer science camp is 17 years. There are 20 girls, 15 boys, and 5 adults. If the average age of the girls is 15 and the average age of the boys is 16, what is the average age of the adults?

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

13. **Answer (C):** The sum of all ages is $40 \times 17 = 680$. The sum of the girls' ages is $20 \times 15 = 300$ and the sum of the boys' ages is $15 \times 16 = 240$. The sum of the five adults' ages is $680 - 300 - 240 = 140$. Therefore, their average is $\frac{140}{5} = 28$.

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1992 Q13

13. Five test scores have a mean (average score) of 90, a median (middle score) of 91 and a mode (most frequent score) of 94. The sum of the two lowest test scores is

(A) 170   (B) 171   (C) 176   (D) 177

(E) not determined by the information given

13. **(B)** If the mean is 90, then the sum of all five scores is $5 \times 90 = 450$. Since the median of the five scores is 91, at least one score must be 91 and two other scores must be greater than or equal to 91. Since 94 is the mode, there are two scores of 94. The sum of the remaining scores must equal $450 - (94 + 94 + 91) = 171$.

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2008 Q13

13. Mr. 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

13. **Answer (C):** Because each box is weighed two times, once with each of the other two boxes, the total $122 + 125 + 127 = 374$ pounds is twice the combined weight of the three boxes. The combined weight is $\frac{374}{2} = 187$ pounds.

2015 Q13

13. How many subsets of two elements can be removed from the set

$$\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11\}$$

so that the mean (average) of the nine remaining numbers is 6?

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

13. **Answer (D):** If the average of the remaining 9 numbers is 6, then their sum is 54. Because the sum of the numbers in the original set is 66, the sum of the two numbers removed must be 12. There are five such subsets: $\{1, 11\}$, $\{2, 10\}$, $\{3, 9\}$, $\{4, 8\}$, and $\{5, 7\}$.

1997 Q13

13. Three bags of jelly beans contain 26, 28, and 30 beans. The ratios of yellow beans to all beans in each of these bags are 50%, 25%, and 20%, respectively. All three bags of candy are dumped into one bowl. Which of the following is closest to the ratio of yellow jelly beans to all beans in the bowl?

(A) 31%   (B) 32%   (C) 33%   (D) 35%   (E) 95%

13. **(A)**   There is a total of $26 + 28 + 30 = 84$ jelly beans:

50% of 26 =	13
25% of 28 =	7
20% of 30 =	6
	26

$\frac{26}{84} = 0.3095 \approx 31\%$

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15. In Theresa's first 8 basketball games, she scored 7, 4, 3, 6, 8, 3, 1 and 5 points. In her ninth game, she scored fewer than 10 points and her points-per-game average for the nine games was an integer. Similarly in her tenth game, she scored fewer than 10 points and her points-per-game average for the 10 games was also an integer. What is the product of the number of points she scored in the ninth and tenth games?

(A) 35   (B) 40   (C) 48   (D) 56   (E) 72

15. **Answer (B):** The sum of the points Theresa scored in the first 8 games is 37. After the ninth game, her point total must be a multiple of 9 between 37 and $37 + 9 = 46$, inclusive. The only such point total is $45 = 37 + 8$, so in the ninth game she scored 8 points. Similarly, the next point total must be a multiple of 10 between 45 and $45 + 9 = 54$. The only such point total is $50 = 45 + 5$, so in the tenth game she scored 5 points. The product of the number of points scored in Theresa's ninth and tenth games is $8 \cdot 5 = 40$.

1993 Q15

15. The arithmetic mean (average) of four numbers is 85. If the largest of these numbers is 97, then the mean of the remaining three numbers is

(A) 81.0   (B) 82.7   (C) 83.0   (D) 84.0   (E) 84.3

15. **(A)** The sum of the four numbers is $4 \times 85 = 340$, so the sum of the remaining three numbers is $340 - 97 = 243$. Thus the mean of these three numbers is $243/3 = 81$.

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