Set Puzzles
September 23, 2025

1. A set of three *distinct* positive integers has mean 6, median 7, and range 7. What is the smallest number in the set?

2. In a set of four numbers, the mean, median, and range are all 40. What is the greatest number in the set?

3. Ten numbers are listed from least to greatest so that the average of the first n numbers is always $2n$ for $1 \leq n \leq 10$. What is the 10^{th} number?

4. In the sequence below, each term beginning with b equals the average of the two preceding terms. Find a.

$$80,\ a,\ b,\ c,\ 50$$

5. Five numbers will be selected from the set $\{1, 4, 6, 8, 9, 11, 15\}$ so that the mean of the five numbers is 9. *Which two numbers must be excluded?*

6. The range of the set $\{12, 20, 18, 85, 37, 32, n\}$ is 80. What is the sum of all possible values of n?

7. A set of five integers has smallest value 7, median 19, and range 26. What is the largest value in the set?

8. In a set of five integers, the *unique* mode is 30, the median is 50, and the mean is 62. What is the largest possible number in the set?

9. In a set of six integers, the mean, median, range, and *unique* mode are all 12. What is the largest possible element?

10. The set $\{8, 14, 20, 26, n\}$ has the same mean and median. What is the *sum of all possible* values of n?

11. The set $\{50, 70, 85, 95, n\}$ has the same mean and median. What is the *sum of all possible* values of n?

12. The set $\{64, 80, 41, 27, 99, 91, n\}$ has the same median and *unique* mode. What is the *sum of all possible* values of n?

13. The set $\{72, 82, 92, 172, n\}$ has its mean equal to its range. What is the integer n?

14. The set $\{15, 19, n, 31\}$ has the same mean and median. What is the *sum of all possible* values of n?