9.4 Mean as Equal Sharing and Balance

Chapter 9: Statistics and Data Analysis

Name: _____ Date: _____ Class/Period: _____

Problem 9.49 Four students collect 4, 6, 8, and 10 cans. If the cans were shared equally, how many would each student have? Explain how the result represents the mean.

Problem 9.50 The values $3, 5, 7, 9$ have mean 6. Describe which values would give units and which would receive units during equal sharing.

Problem 9.51 A data set contains five copies of 12. Predict its mean before calculating and explain why no redistribution is needed.

Problem 9.52 A player scores 7, 9, 10, 12, and 12 points in five games. Find the mean score and interpret it as an equal-share score.

Problem 9.53 Four temperatures have mean $18°C$. Find their total and explain why multiplying reverses the sharing step.

Problem 9.54 Eight students have a mean reading time of 7.5 hours. How many hours did they read altogether?

Problem 9.55 Four values have mean 9. Three are 5, 8, and 11. Find the missing value and check the total.

Problem 9.56 Five quiz scores have mean 84. Four scores are 78, 81, 86, and 90. Predict whether the missing score is below or above 84, then find it.

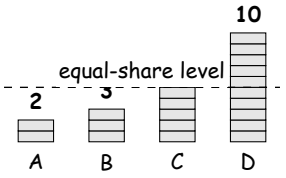
Problem 9.57 Priya says the mean must always be one of the original values. Give a counterexample and explain it using equal sharing.

Problem 9.58 Mateo claims a mean can be greater than the maximum because values are added before dividing. Use the equal-share model to explain why he is wrong.

Problem 9.59 A student divides the sum of $2, 5, 8, 9$ by 9, the largest value. Diagnose the mistake and calculate the correct mean.

Problem 9.60 Every value in a data set increases by 3. Predict and justify the change in the mean without recalculating the full sum.

Problem 9.61 The stacks show 2, 3, 5, and 10 tokens.



How many blocks must move from Student D so that every stack reaches the dashed level? Explain how the picture displays both the total and the mean.

Problem 9.62 Group A has 8 students with mean 72. Group B has 12 students with mean 78. Explain why averaging 72 and 78 is not valid, then find the combined mean by comparing the two group totals.

Problem 9.63 The mean of six numbers is 15. One number is removed, and the mean of the remaining five is 13. Find the removed number and explain why it had to be above the original mean.

Problem 9.64 A data set has n values with mean 18. A value of 30 is added, raising the mean to 20. Write the old total and new total in terms of n, then find n.