



Problem of the Week

Problem C and Solution

To the Next Level

Problem

Maddie Leet is participating in the first round of a math competition. She writes one contest a month in each of the first ten months of the school year. She can earn up to 100 points on each contest. On each of the first five contests she averaged 68 points. On the next three contests she averaged 80 points. In order to advance to the next round of the competition, she must obtain a minimum total of 750 points on the ten contests. What is the minimum average Maddie requires on the final two contests in order to be able to advance to the next round of the competition?

Solution

To determine an average of some numbers, we add the numbers together and divide the sum by the number of numbers.

$$\text{Average} = \frac{\text{Sum of Numbers}}{\text{Number of Numbers}}$$

Therefore, to determine the sum of the numbers we multiply their average by the number of numbers.

$$\text{Sum of Numbers} = \text{Average} \times \text{Number of Numbers}$$

$$\text{Total Score for First 5 Contests} = 68 \times 5 = 340$$

$$\text{Total Score for Next 3 Contests} = 80 \times 3 = 240$$

$$\text{Total Score to Move On} = 750$$

$$\text{Total Score Needed for Last Two Contests} = 750 - 340 - 240 = 170$$

$$\text{Average Score for Final 2 Contests} = 170 \div 2 = 85$$

Maddie needs to average 85 points on her last two contests to have a total score of exactly 750 points. Therefore, the minimum average Maddie needs on the final two contests in order to advance to the next round of the math competition is 85 points. If she averages anything less than 85 points she will not move on. If she averages more than 85 points she will obtain a total score over 750 points and will move on to the next round.