

Problem of the Week
Problem C and Solution
Finish Strong

Problem

Maddie Leet is participating in the first round of a math competition. She writes one contest each month during the first ten months of the school year. Each contest is worth up to 100 points. On her first five contests, she averaged 68 points. On the next three contests, she averaged 80 points. To advance to the next round of the competition, she must earn a total of at least 750 points on the ten contests.

What is the minimum average Maddie must earn on the final two contests 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:

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

Thus, her total score on the first 5 contests is equal to $68 \times 5 = 340$, and her total score on the next 3 contests is equal to $80 \times 3 = 240$.

Since the minimum score to advance to the next round is 750, then she needs to earn at least $750 - 340 - 240 = 170$ on the last two contests.

Thus, she needs an average of at least $170 \div 2 = 85$ on the last two contests.

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 85 points or more, she will move on to the next round.