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Theory

$$\frac{d}{dc} \left[ \sum_{i=1}^n (x_i - c)^2 \right]$$

$$\sum_{i=1}^n 2(x_i - c) = 0$$

$$\left\{ \sum_{i=1}^n 2(x_i) \right\} - 2nc = 0$$

$$2nc = \sum_{i=1}^n 2x_i$$

$$c = \frac{\sum_{i=1}^n x_i}{n} = \text{mean}$$