

Question #175

Key: E

There are 27 possible bootstrap samples, which produce four different results. The results, their probabilities, and the values of g are:

Bootstrap

Sample	Prob	g
1, 1, 1	8/27	0
1, 1, 4	12/27	2
1, 4, 4	6/27	-2
4, 4, 4	1/27	0

The third central moment of the original sample is 2. Then,

$$\text{MSE} = \left[\frac{8}{27}(0-2)^2 + \frac{12}{27}(2-2)^2 + \frac{6}{27}(-2-2)^2 + \frac{1}{27}(0-2)^2 \right] = \frac{44}{9}.$$