

Answer on Question #54995 – Math – Statistics and Probability

Suppose that the 25 even-numbered students among the 50 students available for the comparison of classroom and online instruction (Example 9.5) are older, employed students. We hope that randomization will distribute these students roughly equally between the classroom and online groups. Use the Simple Random Sample applet to take 20 samples of size 25 from the 50 students. These 25 students will be the classroom instruction group. (Be sure to click “Reset” after each sample.) Record the counts of even-numbered students in each of your 20 samples.

(a) How many older students would you expect to see in the classroom instruction group?

Solution

We expect to see 12 or 13 older students from 25.

#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
number	8	12	15	11	7	17	9	13	16	9	8	18	12	16	15	6	10	8	14	16

The average number

$$\bar{n} = \frac{1}{N} \sum_{i=1}^N n_i = \frac{1}{20} \sum_{i=1}^{20} n_i = 12$$

For more precise experimentation should be done not 20, but 100 and more experiments. If theoretically produce an infinite number of experiences, we have to get an average of 12.5.