

10.4.1: Exercises

There are many ANOVA technologies available that simplify the testing process. One such way is by using this desmos graph, <https://www.desmos.com/calculator/eclxv8cdgq>. Use this calculator by entering the data values into the sets labeled l_1 , l_2 , and l_3 .

1. A fourth grade class is studying the environment. One of the assignments is to grow bean plants in different soils. Tommy chose to grow his bean plants in soil found outside his classroom mixed with dryer lint. Tara chose to grow her bean plants in potting soil bought at the local nursery. Nick chose to grow his bean plants in soil from his mother's garden. No chemicals were used on the plants, only water. They were grown inside the classroom next to a large window. Each child grew five plants. At the end of the growing period, each plant was measured, producing the data (in inches) in the table below. Does it appear that the three media in which the bean plants were grown produce the same mean height? Test at a 3% level of significance.

Tommy's Plants	Tara's Plants	Nick's Plants
24	25	23
21	31	27
23	23	22
30	20	30
23	28	20

2. Are the means for the final exams the same for all statistics class delivery types? The table below shows the scores on final exams from several randomly selected classes that used the different delivery types. Assume that all distributions are normal, the four population standard deviations are approximately the same, and the data were collected independently and randomly. Use a level of significance of 5%.

Online	Hybrid	Face-to-Face
72	83	80
84	73	78
77	84	84
80	81	81
81		86
		79
		82