



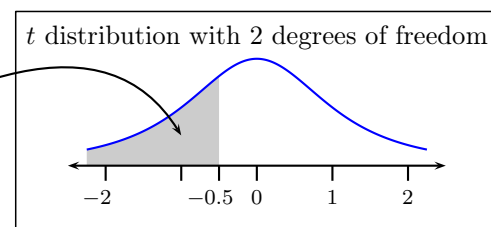
z - and t -Test Exercises

1. A coin is tossed 10,000 times, and it lands heads 5,167 times. Is the chance of heads equal to 50%? Or are there too many heads for that? State the null and alternative hypotheses. Compute z and P .

2. Use the table below to find the specified area under the t -distribution (Student's curve).

- a) To the left of -1.0 if degrees of freedom is 3.
- b) To the right of 1.0 if degrees of freedom is 3.
- c) To the right of 1.5 if degrees of freedom is 2.
- d) To the left of 0.5 if degrees of freedom is 2.

Degrees of Freedom	t			
	-2.0	-1.5	-1.0	-0.5
1	0.148	0.187	0.250	0.352
2	0.092	0.136	0.211	0.333
3	0.070	0.115	0.196	0.326



3. A spectrophotometer is being calibrated for its daily use. Two measurements are taken which give readings of 71 and 84. The device is well-calibrated if its average measurement is 70. Perform a t -test to conclude whether or not the device is well-calibrated.

4. One large course has 900 students, broken down into sections meeting with 30 students each. The section meetings are led by teaching assistants. On the final, the class average is 63, and the SD is 20. However, in one section the average is only 55. The TA argues this way:

If you took 30 students at random from the class, there is a pretty good chance they would average below 55 on the final. That's what happened to me — chance variation.

Is this a good defense? Answer yes or no, and explain briefly.

5. If you used a z -test to answer the previous question, redo it using a t -test. If you used t , redo it using z .