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Statistics for laboratory scientists

Solutions for the homework problems for lecture 15

1. The pooled estimate of the population SD is $\sqrt{\{ [10.67^2 \times 9 + 9.30^2 \times 4] / 13 \}} = \mathbf{10.27}$.

The estimated SE of the difference between the sample means is $10.27 \times \sqrt{\{ 1/10 + 1/5 \}} = \mathbf{5.62}$

The 97.5 percentile of the t distribution with 13 degrees of freedom is **2.16**. (In R, use `qt(0.975,13)`.)

Thus the 95% confidence interval is $(103-67) \pm 2.16 \times 5.62 = \mathbf{36 \pm 12} = \mathbf{(24, 48)}$.

In R, if `x` is the data for the sample from strain A and `y` is the data for the sample from strain B, type `t.test(x,y,var.equal=TRUE)` to get the above confidence interval.

[[3rd term syllabus](#) | [4rd term syllabus](#) | [R for Windows](#)]

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