Excel Program: Shifting Hypotheses[i] *(basic instructions)*

The curves in the Excel example depict the hypotheses in test *T*+, the one-sided Normal test of
H_0: $\mu \leq \mu_0$: (blue curve) against H_1: $\mu > \mu_0$: (red curve).

Null (or test) hypothesis H_0: $\overline{X}$ is Normal (μ, $\sigma/\sqrt{n}$), $\mu \leq \mu_0$.
Alternative H_1: $\overline{X}$ is Normal (μ, $\sigma/\sqrt{n}$), $\mu > \mu_0$.

A specific example for which this was designed is H_0: $\mu \leq 12$ (blue curve) against H_1: $\mu > 12$: (red curve), but it can be changed.

The computations and areas under curves can be used for different purposes (severity and confidence intervals a shown below the curves). Here I just give the standard computations.

To change an entry, click on the relevant box, write in the change, and then click someplace else outside the box until it works.

Turquoise box
In the turquoise box, you can set the population SD, σ, which we imagine is known and fixed under the null and alternative. Below that, sample size n.

Grey box
You can change the sample mean $\overline{X}$.
The grey box also shows the corresponding p value.

Orange box
In the orange box you can set different point values for μ_1 under the alternative hypothesis H_1.

Green box: shows power

Note how the curves and shaded areas change.

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[i] The program was made by Geoffrey Cummings in relation to a presentation by D. Mayo and A. Spanos, as part of our workshop one afternoon at the National Center for Ecological Analysis and Synthesis over a decade ago. I'd like to update it: ideas?