

z - and t - values

z -Values

To find z_{φ}

- ◆ Calculate $1 - \varphi$
- ◆ Find it in the inside of the z -table
- ◆ Read off the corresponding number in the edge of the table. This is your z -value.

To find a P -value corresponding to a z -statistic of ?

- ◆ If ? is negative, drop the negative sign.
- ◆ Look up that value in the headers of the z -table
- ◆ Find the corresponding number in the body of the table. Take $1 -$ whatever you find in there.
- ◆ If your test is one-tailed. That's the P -value. If it's 2-tailed, multiply this by 2.

t -Values

To find $t_{n, \varphi}$

- ◆ Find the row corresponding to n degrees of freedom.
- ◆ Find the column corresponding to ?
- ◆ Read off the number.

To find a P -value corresponding to a t -statistic of ?

- ◆ Find the row corresponding to the correct degrees of freedom.
- ◆ Find the entry ? In that row.
- ◆ Read off the corresponding value in the header of the table.
- ◆ If your test is one-tailed. That's the P -value. If it's 2-tailed, multiply this by 2.

The Lazy-Person's Guide to Common P -Values

		Z-values		T-values, 10 d.f.		T-values, 20 d.f.	
		Two-tailed	One-tailed	Two-tailed	One-tailed	Two-tailed	One-tailed
		Critical Value	Critical Value	Critical Value	Critical Value	Critical Value	Critical Value
α	P -value	$Z_{(1-\alpha)/2}$	$Z_{(1-\alpha)}$	$t_{10, (1-\alpha)/2}$	$t_{10, (1-\alpha)}$	$t_{20, (1-\alpha)/2}$	$t_{20, (1-\alpha)}$
90%	0.1	1.64	1.28	1.81	1.37	1.72	1.33
95%	0.05	1.96	1.64	2.23	1.81	2.09	1.72
99%	0.01	2.58	2.33	3.17	2.76	2.85	2.53

Conventions Used in these Sheets

For consistency: note that in all these sheets, we adopt the convention that α is a percentage (for example, $\alpha = 0.95$). If the question instead assumes $\alpha = 0.05$ (for example), make sure you convert this to $\alpha = 0.95$ to use these sheets correctly.

We also define $\alpha = \mathbb{P}(Z \leq z_{\alpha})$ and $\alpha = \mathbb{P}(T_n \leq t_{n, \alpha})$, and P -value = $1 - \alpha$.