How to use T-Table

- t_α = P(T<t)=α
- $t_{1-\alpha} = -t_\alpha$

الجدول يحسب اقل من

Note: Some t-tables contain values of α that are greater than or equal to 0.90. When we search for small values of α in these tables, we may use the fact that:

$$t_{1-\alpha} = -t_\alpha$$

أ/ خلود باسالم

اذا معطاء الاحتمال والمطلوب قيمة t

1

df=v=10

$t_{0.95}$ = P(T<t)=0.95

$t = 1.812$

v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106

2

df=v= 5

P(T<k)=0.90

k = 1.476

v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106

أ/ خلود باسالم

3

$t_{0.05}$, df = 20

القيمة صغيرة مو موجوده في الجدول

اذا استخدم الخاصية:

$t_{1-\alpha} = - t_{\alpha}$

$t_{0.05} = -t_{1-0.05} = - t_{0.95}$

$= - 1.725$

القيمة اصبحت موجودة في الجدول

v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831

④ $P(T \geq K) = 0.95$, $(df = 15)$

هنا اكبر لا يمكن استخراجها من الجدول مباشرة

يوجد طريقتين للحل

1- اكبر من والاحتمال 0.95 موجود بالجدول

اضع سالب وابحث بالقيمة المعطاه

الحل : $k = -1.753$

v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
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19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831

2-عن طريق ايجاد المكملة

1- $P(T<k)=0.95 \Rightarrow P(T<k)=1-0.95 \Rightarrow P(T<k)=0.05$ يمكن كتابتها $t_{0.05} = -t_{1-0.05}$

$= -t_{0.95}$

$= -1.753$

القيمة صغيرة مو موجوده في الجدول

اذا استخدم الخاصية:

$t_{1-\alpha} = -t_{\alpha}$

القيمة اصبحت موجودة في الجدول

0.93

5 $P(T \le t) = 0.93$ (df =10)

القيمة اكبر من 0.90
ابحث عن القيمة في الجدول اذا مو موجودة
اشوف محصورة بين اي رقمين

$$t = \frac{1.372+1.812}{2} = 1.592$$

v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
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20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831

اذا المطلوب ايجاد قيمة الاحتمال

6 $P(T \le 2.110)=?$ $(df=17)$

اذهب عند درجة الحرية **df=17**

وابحث في نفس الصف عن القيمة **2.110**

اشوف قيمة الاحتمال المقابلة للقيمة **2.110**

$P(T \le 2.110)=$ **0.975**

v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831

7 $P(T \le 2.718)=?$ $(df=11)$

اذهب عند درجة الحرية df=11

وابحث في نفس الصف عن القيمة 2.718

اشوف قيمة الاحتمال المقابلة للقيمة 2.718

$P(T \le 2.718)=$ **0.99**

v=df	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.99}$	$t_{0.995}$
1	3.078	6.314	12.706	[illegible]	63.657
2	1.886	2.920	4.303	[illegible]	9.925
3	1.638	2.353	3.182	[illegible]	5.841
4	1.533	2.132	2.776	[illegible]	4.604
5	1.476	2.015	2.571	[illegible]	4.032
6	1.440	1.943	2.447	[illegible]	3.707
7	1.415	1.895	2.365	[illegible]	3.499
8	1.397	1.860	2.306	[illegible]	3.355
9	1.383	1.833	2.262	[illegible]	3.250
10	1.372	1.812	2.228	[illegible]	3.169
11	[illegible]	[illegible]	[illegible]	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831

How to use T-Table :

1) $t_{0.95}$= ? (df=10)

1.812

2) $t_{0.90}$ = ? (df =12)

1.356

3) $t_{0.05}$= ? (df=20)

-1.725

4) $t_{0.10}$= ? (df=5)

-1.476

طريقه اخرى لكتابة الاحتمال

1) P(T < K) =0.90, (df =5)

k= 1.476

2) P(T ≥ K) =0.95, (df =15)

k= -1.753

3) P(T ≤ 2.110)=? (df =17)

0.975

4) P(T ≤ 2.718)=? (df =11)

0.99

أ/ خلود باسالم