Terminology

The following box summarizes terminology associated with straight line regression.

Population regression function, or simply, the **regression function:**

$$\mu_Y(x) = \beta_0 + \beta_1 x \qquad \text{for } a \le x \le b$$

Sample regression function:

$$\hat{\mu}_Y(x) = \hat{\beta}_0 + \hat{\beta}_1 x$$

Population regression model, or simply, the **regression model:**

$$Y_I = \beta_0 + \beta_1 X_I + E_I \qquad \text{for } I = 1, \ldots, N$$

Sample regression model:

$$y_i = \beta_0 + \beta_1 x_i + e_i \quad \text{for} \quad i = 1, \ldots, n$$

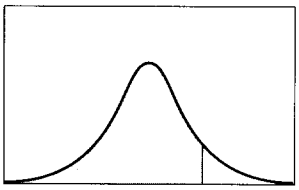
A randomly chosen Y value from the subpopulation determined by $X = x$:

$$Y(x)$$

Sample prediction function, or simply, **prediction function:**

$$\hat{Y}(x) = \hat{\beta}_0 + \hat{\beta}_1 x$$

Note: $\hat{\mu}_Y(x) = \hat{Y}(x)$.



The entries in this table are $t_{p;df}$, where p is the proportion of the population values that are between $-\infty$ and $t_{p;df}$, for p = .80, .90, .95, .975, .99, .995, .9995.

	p						
df	**.80**	**.90**	**.95**	**.975**	**.99**	**.995**	**.9995**
1	1.376	3.078	6.314	12.706	31.821	63.657	636.619
2	1.061	1.886	2.920	4.303	6.965	9.925	31.599
3	.978	1.638	2.353	3.182	4.541	5.841	12.924
4	.941	1.533	2.132	2.776	3.747	4.604	8.610
5	.920	1.476	2.015	2.571	3.365	4.032	6.869
6	.906	1.440	1.943	2.447	3.143	3.707	5.959
7	.896	1.415	1.895	2.365	2.998	3.499	5.408
8	.889	1.397	1.860	2.306	2.896	3.355	5.041
9	.883	1.383	1.833	2.262	2.821	3.250	4.781
10	.879	1.372	1.812	2.228	2.764	3.169	4.587
11	.876	1.363	1.796	2.201	2.718	3.106	4.437
12	.873	1.356	1.782	2.179	2.681	3.055	4.318
13	.870	1.350	1.771	2.160	2.650	3.012	4.221
14	.868	1.345	1.761	2.145	2.624	2.977	4.140
15	.866	1.341	1.753	2.131	2.602	2.947	4.073
16	.865	1.337	1.746	2.120	2.583	2.921	4.015
17	.863	1.333	1.740	2.110	2.567	2.898	3.965
18	.862	1.330	1.734	2.101	2.552	2.878	3.922
19	.861	1.328	1.729	2.093	2.539	2.861	3.883
20	.860	1.325	1.725	2.086	2.528	2.845	3.850
21	.859	1.323	1.721	2.080	2.518	2.831	3.819
22	.858	1.321	1.717	2.074	2.508	2.819	3.792
23	.858	1.319	1.714	2.069	2.500	2.807	3.768
24	.857	1.318	1.711	2.064	2.492	2.797	3.745
25	.856	1.316	1.708	2.060	2.485	2.787	3.725
26	.856	1.315	1.706	2.056	2.479	2.779	3.707
27	.855	1.314	1.703	2.052	2.473	2.771	3.690
28	.855	1.313	1.701	2.048	2.467	2.763	3.674
29	.854	1.311	1.699	2.045	2.462	2.756	3.659
30	.854	1.310	1.697	2.042	2.457	2.750	3.646
40	.851	1.303	1.684	2.021	2.423	2.704	3.551
50	.849	1.299	1.676	2.009	2.403	2.678	3.496
60	.848	1.296	1.671	2.000	2.390	2.660	3.460
100	.845	1.290	1.660	1.984	2.364	2.626	3.390
∞	.842	1.282	1.645	1.960	2.327	2.576	3.292

THE END