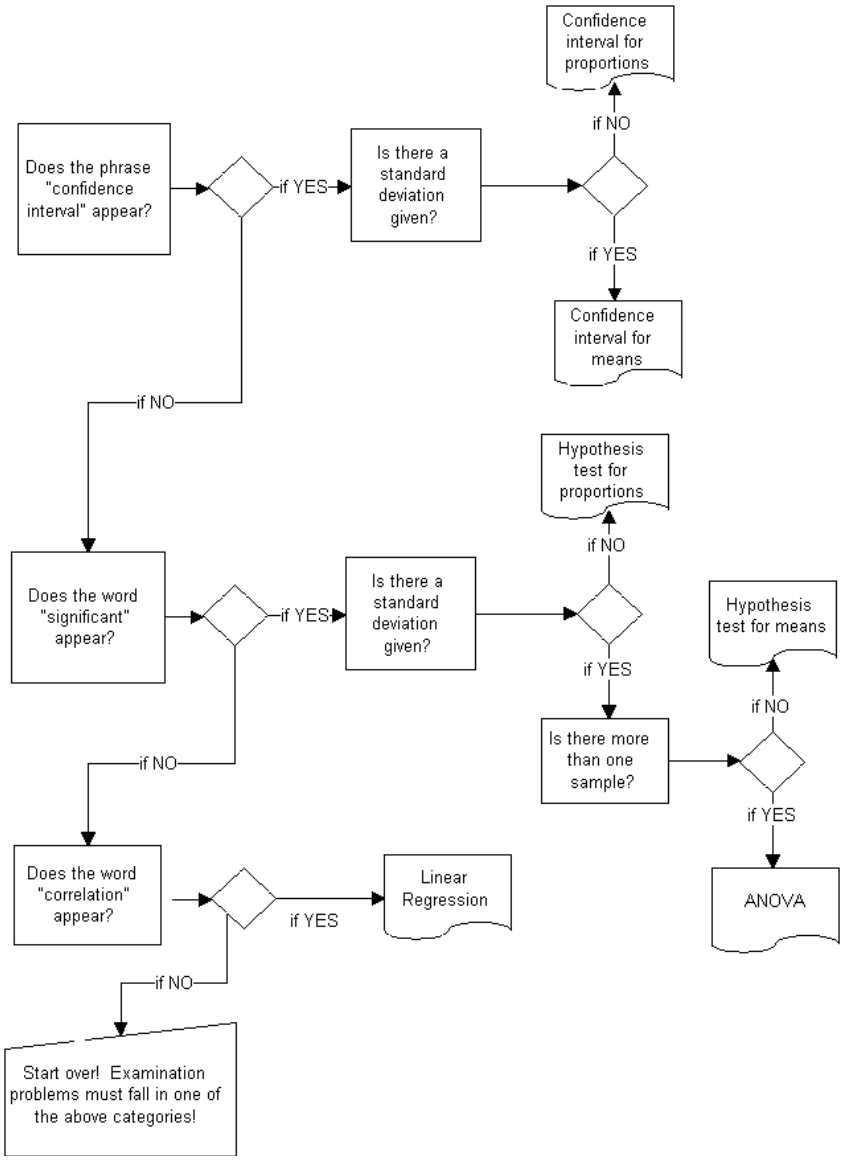
Appendix G. List of Symbols.

$\bar{x}$	sample mean (x bar)
s	sample standard deviation
s^2	sample variance
μ	population mean (mu)
σ	population standard deviation (sigma)
σ^2	population variance
$\sum$	summation sign (capital sigma)
$\hat{p}$	sample proportion (p hat)
p	population proportion
z	any value from a standard normal table
H_0	null hypothesis (H-nought)
H_A	alternative hypothesis

Appendix H. List of Formulae.

What %-tile corresponds to a known score? (Outside-in problems)	if $\boldsymbol{\mu}, \boldsymbol{\sigma}$ known: $\boldsymbol{z} = \dfrac{\boldsymbol{x} - \boldsymbol{\mu}}{\boldsymbol{\sigma}}$ if $\boldsymbol{\mu}, \boldsymbol{\sigma}$ unknown: $\boldsymbol{z} = \dfrac{\boldsymbol{x} - \bar{\boldsymbol{x}}}{\boldsymbol{s}}$
What score corresponds to a known %-tile? (Inside-out problems)	if $\boldsymbol{\mu}, \boldsymbol{\sigma}$ known: $\boldsymbol{x} = \boldsymbol{\mu} + \boldsymbol{z} \times \boldsymbol{\sigma}$ if $\boldsymbol{\mu}, \boldsymbol{\sigma}$ unknown: $\boldsymbol{x} = \bar{\boldsymbol{x}} + \boldsymbol{z} \times \boldsymbol{s}$
Confidence interval for means	$\bar{\boldsymbol{x}} \pm \dfrac{\boldsymbol{z_c s}}{\sqrt{\boldsymbol{n}}}$
Confidence interval for proportions	$\hat{\boldsymbol{p}} \pm \boldsymbol{z_c} \sqrt{\dfrac{\hat{\boldsymbol{p}}(1-\hat{\boldsymbol{p}})}{\boldsymbol{n}}}$
Hypothesis tests for means	$\boldsymbol{T} = \dfrac{\bar{\boldsymbol{x}} - \boldsymbol{\mu}_0}{\boldsymbol{s}/\sqrt{\boldsymbol{n}}}$
Hypothesis tests for proportions	$\boldsymbol{T} = \dfrac{\hat{\boldsymbol{p}} - \boldsymbol{p}_0}{\sqrt{\frac{\boldsymbol{p}_0(1-\boldsymbol{p}_0)}{\boldsymbol{n}}}}$
ANOVA	$\boldsymbol{F} = \dfrac{\boldsymbol{V_C}/(\text{d.f. for } \boldsymbol{V_C})}{\boldsymbol{V_R}/(\text{d.f. for } \boldsymbol{V_R})}$
regression	$\boldsymbol{m} = \dfrac{\boldsymbol{r s_y}}{\boldsymbol{s_x}}$ $\boldsymbol{b} = \bar{\boldsymbol{y}} - \boldsymbol{m}\bar{\boldsymbol{x}}$ $\boldsymbol{y} = \boldsymbol{mx} + \boldsymbol{b}$

Appendix I. Flow Chart for Problems.



Appendix X. Chi Squared Tables

These are for *one tailed* chi squared tests.

	10.00%	5.00%	4.00%	3.00%	2.50%	1.00%	0.50%
1	2.7055	3.8415	4.2179	4.7093	5.0239	6.6349	7.8794
2	4.6052	5.9915	6.4378	7.0131	7.3778	9.2103	10.5966
3	6.2514	7.8147	8.3112	8.9473	9.3484	11.3449	12.8382
4	7.7794	9.4877	10.0255	10.7119	11.1433	13.2767	14.8603
5	9.2364	11.0705	11.6443	12.3746	12.8325	15.0863	16.7496
6	10.6446	12.5916	13.1978	13.9676	14.4494	16.8119	18.5476
7	12.0170	14.0671	14.7030	15.5091	16.0128	18.4753	20.2777
8	13.3616	15.5073	16.1708	17.0105	17.5345	20.0902	21.9550
9	14.6837	16.9190	17.6083	18.4796	19.0228	21.6660	23.5894
10	15.9872	18.3070	19.0207	19.9219	20.4832	23.2093	25.1882
11	17.2750	19.6751	20.4120	21.3416	21.9200	24.7250	26.7568
12	18.5493	21.0261	21.7851	22.7418	23.3367	26.2170	28.2995
13	19.8119	22.3620	23.1423	24.1249	24.7356	27.6882	29.8195
14	21.0641	23.6848	24.4855	25.4931	26.1189	29.1412	31.3193
15	22.3071	24.9958	25.8162	26.8479	27.4884	30.5779	32.8013
16	23.5418	26.2962	27.1356	28.1907	28.8454	31.9999	34.2672
17	24.7690	27.5871	28.4450	29.5227	30.1910	33.4087	35.7185
18	25.9894	28.8693	29.7451	30.8447	31.5264	34.8053	37.1565
19	27.2036	30.1435	31.0367	32.1577	32.8523	36.1909	38.5823
20	28.4120	31.4104	32.3206	33.4624	34.1696	37.5662	39.9968
21	29.6151	32.6706	33.5972	34.7593	35.4789	38.9322	41.4011
22	30.8133	33.9244	34.8673	36.0492	36.7807	40.2894	42.7957
23	32.0069	35.1725	36.1311	37.3323	38.0756	41.6384	44.1813
24	33.1962	36.4150	37.3891	38.6093	39.3641	42.9798	45.5585
25	34.3816	37.6525	38.6416	39.8804	40.6465	44.3141	46.9279
26	35.5632	38.8851	39.8891	41.1460	41.9232	45.6417	48.2899
27	36.7412	40.1133	41.1318	42.4066	43.1945	46.9629	49.6449
28	37.9159	41.3371	42.3699	43.6622	44.4608	48.2782	50.9934
29	39.0875	42.5570	43.6038	44.9132	45.7223	49.5879	52.3356
30	40.2560	43.7730	44.8336	46.1599	46.9792	50.8922	53.6720
40	51.8051	55.7585	56.9459	58.4278	59.3417	63.6907	66.7660
50	63.1671	67.5048	68.8039	70.4230	71.4202	76.1539	79.4900
60	74.3970	79.0819	80.4820	82.2251	83.2977	88.3794	91.9517
70	85.5270	90.5312	92.0241	93.8813	95.0232	100.4252	104.2149
80	96.5782	101.8795	103.4588	105.4221	106.6286	112.3288	116.3211
90	107.5650	113.1453	114.8057	116.8688	118.1359	124.1163	128.2989
100	118.4980	124.3421	126.0794	128.2367	129.5612	135.8067	140.1695