Is the mean hourly rate of male workers $12.00?

Dataset: CPSPUB-FEB2000

T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Hourly pay rate	2997	12.0522	6.6282	.1211

One-Sample Test

	Test Value = 12					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Hourly pay rate	.431	2996	.666	5.224E-02	-.1852	.2896

The sample mean is 12.0522. We're comparing that against the claimed mean of $12.00. With a two-tailed probability value of 0.666, we see that the sample mean is not significantly different from the claimed mean.

Do men make more per hour than women?

Dataset: CPSPUB-FEB2000

T-Test

Group Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
Hourly pay rate	Male	2997	12.0522	6.6282	.1211
	Female	3432	10.0534	5.3606	9.150E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hourly pay rate	Equal variances assumed	112.944	.000	13.359	6427	.000	1.9989	.1496	1.7055	2.2922
	Equal variances not assumed			13.171	5756.093	.000	1.9989	.1518	1.7014	2.2964

Levene's Test for Equality of Variances has a significance of 0.000. This means that the variances are not equal and you should read from the "equal variances not assumed" row.
In this case, it doesn't really matter, because the two-tailed p-value is 0.000 in both cases. However, please note that this is a one-tail (right-tail) test, and so the p-value given by SPSS must be divided by 2 to get the one-tail p-value. However, 0.000 / 2 is still 0.000. So, there is a definite difference in hourly rates.
SPSS doesn't tell you directly which one is larger, but since you know there is a difference, look at the "group statistics" and see that the mean for men is 12.0522 and the mean for women is 10.0534. This lets us know that men make more per hour than women.

Did Math 113 students score better on the second exam than the first?

Dataset: SP2000GRADES-B

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Exam 1 score	73.52	23	11.92	2.49
	Exam 2 score	79.52	23	7.75	1.61

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Exam 1 score & Exam 2 score	23	.500	.015

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Exam 1 score - Exam 2 score	-6.00	10.48	2.19	-10.53	-1.47	-2.746	22	.012

Notice the "Paired Sample Statistics" give the sample means for each exam. The first exam had a mean of 73.52 and the second had a mean of 79.52, but is that significantly higher?
Looking at the "Paired Samples Test", we see that the two-tail probability value is 0.012, which is certainly significant at alpha=0.05. This is, however, a one-tail test because we're testing that they did *better*, not just that they did differently. So, the actual p-value is 0.006, still significant.
To know whether they did better or worse, you have to compare the means, and since the second exam is more, they did better on the second exam.

Is there any difference in the exam scores for Math 113?

Oneway

Dataset: SP2000GRADES

Descriptives

Exam score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	23	73.52	11.92	2.49	68.37	78.68	46	89
2	23	79.52	7.75	1.61	76.17	82.87	61	91
3	23	73.87	10.45	2.18	69.35	78.39	52	95
4	23	74.30	10.85	2.26	69.61	79.00	54	91
Total	92	75.30	10.48	1.09	73.13	77.47	46	95

Test of Homogeneity of Variances

Exam score

Levene Statistic	df1	df2	Sig.
1.414	3	88	.244

ANOVA

Exam score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	552.522	3	184.174	1.717	.169
Within Groups	9438.957	88	107.261		
Total	9991.478	91			

The "Descriptives" gives the mean for each exam and also the grand mean. The test for homogeneity of variances has a p-value 0.244, which is not significant enough to say the variances are different, so we're assuming equal variances.
The "ANOVA" table has a p-value of 0.169, which is not significant. So, there is no significant difference in the means.
Don't do any Post Hoc tests to find the differences in the means because there aren't any.

Do at least 2/3 of the people work 40 hours or more per week?

NPar Tests

Dataset: CPSPUB-FEB2000

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (1-tailed)
Number of hours usually worked	Group 1	<= 39	2263	.352	.333	.001[a]
	Group 2	> 39	4166	.648		
	Total		6429	1.000		

a. Based on Z Approximation.

Notice that we get a one-tailed p-value from SPSS. If you wanted to know whether it was exactly 2/3, then you would have to double the p-value for a two-tail test. However, also notice that it is 0.001, which is statistically significant. Therefore we can reject our claim that at least 2/3 of the people work 40 hours or more per week. They don't. It's closer to 64.8% than 2/3.

Is the proportion of female union members the same as the proportion of male union members?

Dataset: CPSPUB-FEB2000

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sex * Union member	6429	100.0%	0	.0%	6429	100.0%

Sex * Union member Crosstabulation

Count

		Union member		
		Yes	No	Total
Sex	Male	509	2488	2997
	Female	295	3137	3432
Total		804	5625	6429

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	102.878[b]	1	.000		
Continuity Correction[a]	102.113	1	.000		
Likelihood Ratio	103.244	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	102.862	1	.000		
N of Valid Cases	6429				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 374.80.

Use the Pearson Chi-Square row from the output table. The p-value is 0.000, so there is a definite difference between the proportion of men and women in the union.

Are 78% White, 16% Black, 2% Indian, and 4% Asian?

Dataset: CPSPUB-FEB2000

NPar Tests

Chi-Square Test

Frequencies

Race

	Observed N	Expected N	Residual
White	5414	5014.6	399.4
Black	689	1028.6	-339.6
American Indian, Aleut, Eskimo	78	128.6	-50.6
Asian or Pacific Islander	248	257.2	-9.2
Total	6429		

Test Statistics

	Race
Chi-Square[a]	164.175
df	3
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 128.6.

The p-value is 0.000, so the observed frequencies do not agree with the expected frequencies. The goodness of fit test doesn't tell us where the differences lie, only that there was at least one that was different.