

Graphing Data and Statistical Analysis with Excel Practice

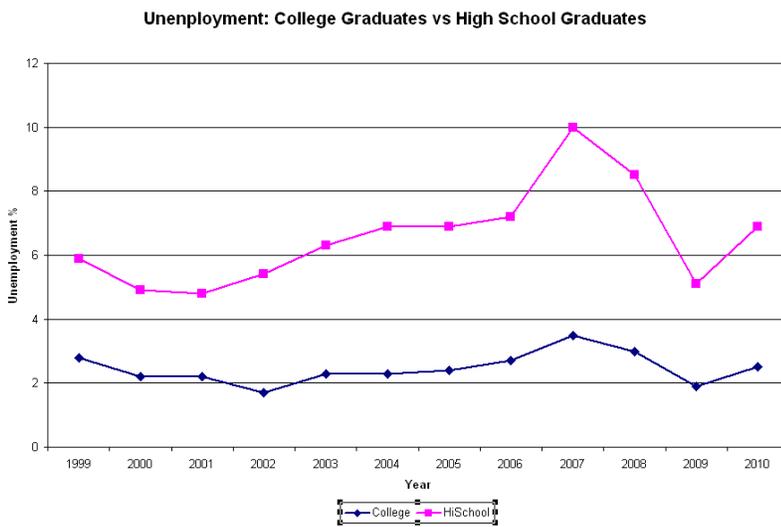
Answer Key

Independent Practice: *Unemployment: College vs. High School Graduates*

1. Creating a graph **answer**



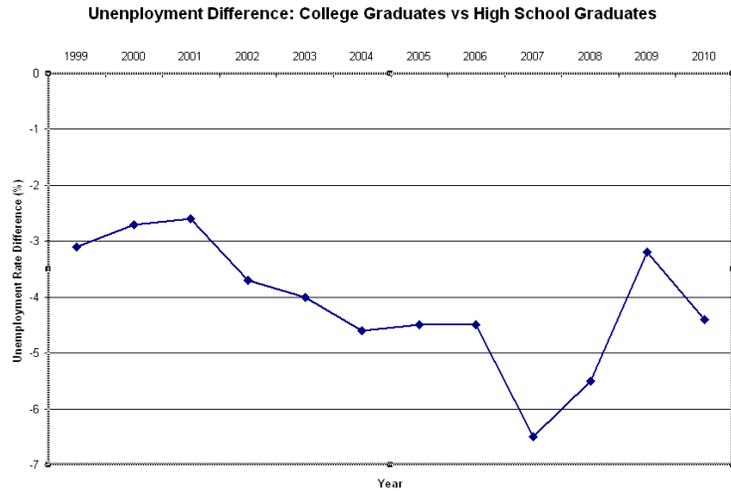
2. Formatting a graph **answer**



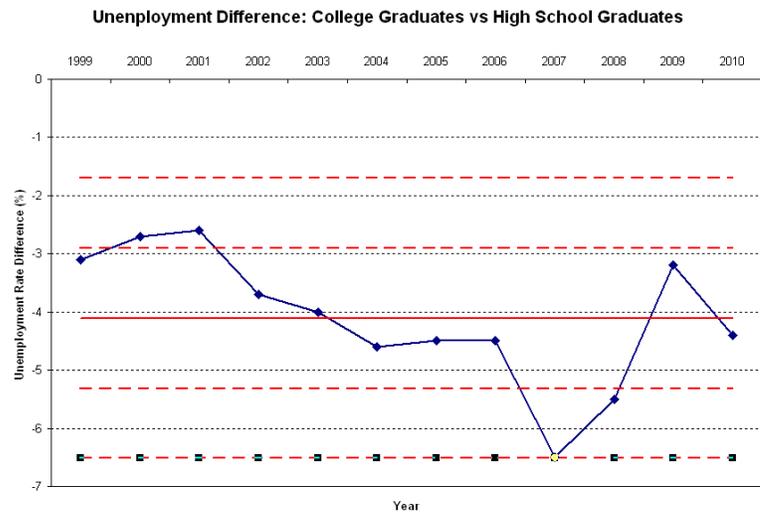
3. Calculating statistics **answer**

	Year	College	HiSchool	Differences
11				
12	1999	2.8	5.9	-3.1
13	2000	2.2	4.9	-2.7
14	2001	2.2	4.8	-2.6
15	2002	1.7	5.4	-3.7
16	2003	2.3	6.3	-4.0
17	2004	2.3	6.9	-4.6
18	2005	2.4	6.9	-4.5
19	2006	2.7	7.2	-4.5
20	2007	3.5	10.0	-6.5
21	2008	3.0	8.5	-5.5
22	2009	1.9	5.1	-3.2
23	2010	2.5	6.9	-4.4
24	Mean	2.458333	6.566667	-4.108333
25	St Dev	0.512569	1.61448	1.2031776
26	Max	3.5	10.0	-6.5
27	Min	1.7	4.8	-3.1
28	Range	1.8	5.2	3.8999999
29	Median	2.3	6.3	-4.0

4. Graphing data differences answer



5. Graphing mean and standard deviation for differences answer



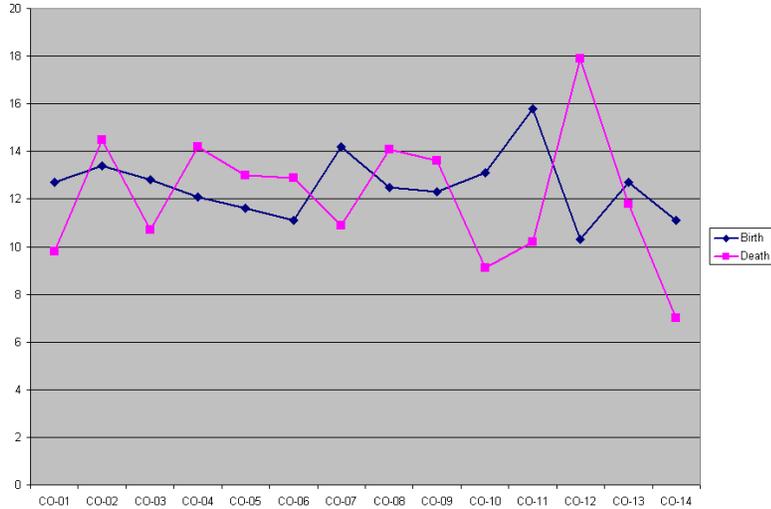
6. Compute the sample differences t-value, p-value and sampling standard deviation answers

Because $p\text{-value} = 0.00000004$ is less than 0.05 or 0.10 then there is evidence at the 5% or 10% level of significance to reject the original assumption (H_0) that unemployment rates are the same, and conclude that the unemployment rate for the high school graduates is greater than the unemployment rate for college graduates.

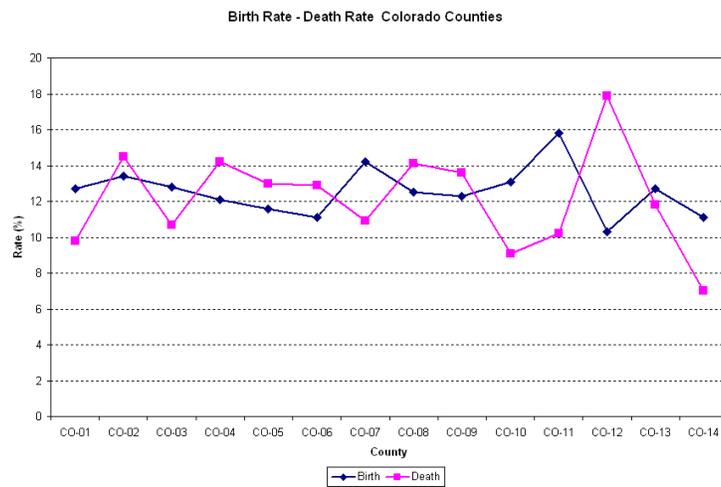
18	2005	2.4	6.9	-4.5
19	2006	2.7	7.2	-4.5
20	2007	3.5	10	-6.5
21	2008	3	8.5	-5.5
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26	Max	3.5	10	-2.6
27	Min	1.7	4.8	-6.5
28	Range	1.8	5.2	3.8999999
29	Median	2.3	6.3	-4
30				
31			p-value	4.268E-08
32			t-value	-11.82842
33			S-StDev	0.3473274

Independent Practice: Birth Rates vs. Death Rates

1. Creating a graph answer



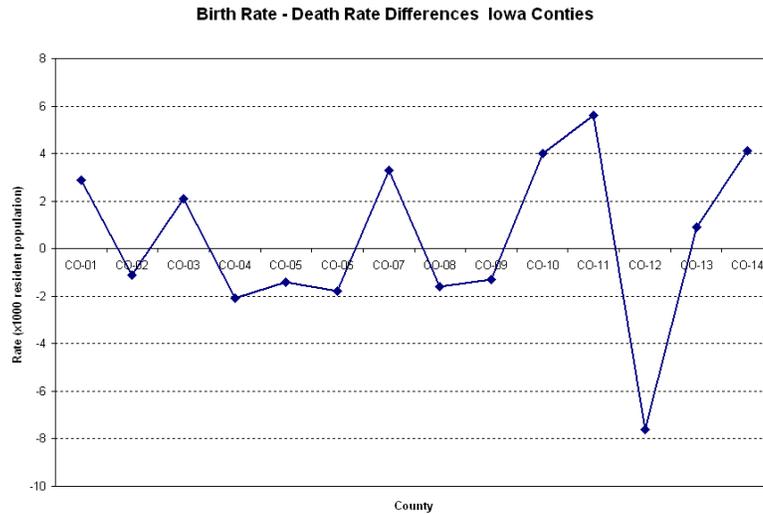
2. Formatting a graph answer



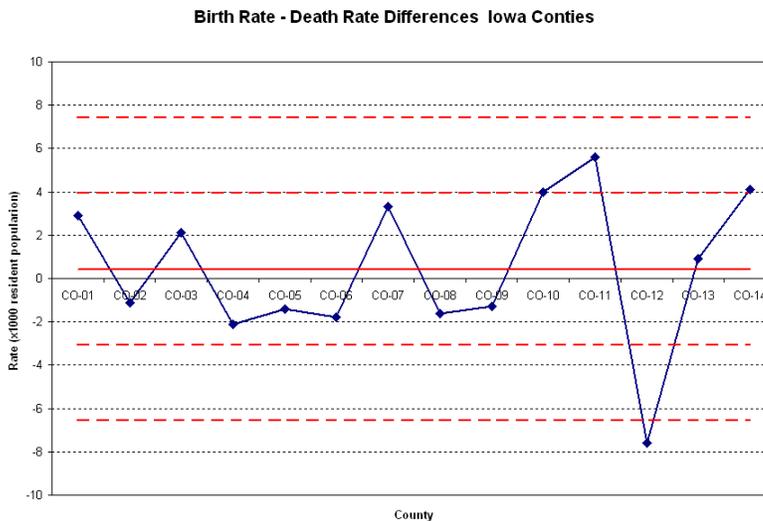
3. Calculating statistics answer

	County ID	Birth	Death	Difference
11				
12	CO-01	12.7	9.8	2.9
13	CO-02	13.4	14.5	-1.1
14	CO-03	12.8	10.7	2.1
15	CO-04	12.1	14.2	-2.1
16	CO-05	11.6	13	-1.4
17	CO-06	11.1	12.9	-1.8
18	CO-07	14.2	10.9	3.3
19	CO-08	12.5	14.1	-1.6
20	CO-09	12.3	13.6	-1.3
21	CO-10	13.1	9.1	4
22	CO-11	15.8	10.2	5.6
23	CO-12	10.3	17.9	-7.6
24	CO-13	12.7	11.8	0.9
25	CO-14	11.1	7	4.1
26	Mean	12.55	12.12143	0.428571
27	St Dev	1.382723	2.758254	3.496686
28	Max	15.8	17.9	5.6
29	Min	10.3	7	-7.6
30	Range	5.5	10.9	13.2
31	Median	12.6	12.35	-0.1

4. Graphing data differences **answer**



5. Graphing mean and standard deviation for differences **answer**



6. Compute the sample differences t-value, p-value, and sampling standard deviation **answer**

Because p -value = 0.327 is greater than 0.05 or 0.10, no evidence exists at the 5% or 10% level of significance to reject the original assumption (H_0) that there is a statistical significant difference between birth rates and death rates in Ohio counties.

20	CO-09	12.3	13.6	-1.3
21	CO-10	13.1	9.1	4
22	CO-11	15.8	10.2	5.6
23	CO-12	10.3	17.9	-7.6
24	CO-13	12.7	11.8	0.9
25	CO-14	11.1	7	4.1
26	Mean	12.55	12.12143	0.428571
27	St Dev	1.382723	2.758254	3.496686
28	Max	15.8	17.9	5.6
29	Min	10.3	7	-7.6
30	Range	5.5	10.9	13.2
31	Median	12.6	12.35	-0.1
32				
33			p-value	0.327048
34			t-value	0.574881
35			S-StDev	0.745496

Addendum: *Data Set Descriptions and Sources*

1. Guided Practice: *Average Faculty Salaries, Males vs. Females*

This paired data of average salaries for assistant professors comes from a random sample of 22 US colleges and universities and compares average salaries (x \$1,000/year) for male and female assistant professors. (Source: Academe, Bulletin of the American Association of University Professors)

College ID	Male AP	Female AP
C-1	34.5	33.9
C-2	30.5	31.2
C-3	35.1	35.0
C-4	35.7	34.2
C-5	31.5	32.4
C-6	34.4	34.1
C-7	32.1	32.7
C-8	30.7	29.9
C-9	33.7	31.2
C-10	35.3	35.5
C-11	30.7	30.2
C-12	34.2	34.8
C-13	39.6	38.7
C-14	30.5	30.0
C-15	33.8	33.8
C-16	31.7	32.4
C-17	32.8	31.7
C-18	38.5	38.9
C-19	40.5	41.2
C-20	25.3	25.5
C-21	28.6	28.0
C-22	35.8	35.1

2. Independent Practice: *Unemployment: College vs. High School Graduates*

This paired data shows the percentage of unemployed high school graduates vs. unemployed college graduates for the years 1998-2010. (Source: Statistical Abstract of the U.S.)

Year	College	High School
1999	2.8	5.9
2000	2.2	4.9
2001	2.2	4.8
2002	1.7	5.4
2003	2.3	6.3
2004	2.3	6.9
2005	2.4	6.9
2006	2.7	7.2
2007	3.5	10.0
2008	3	8.5
2009	1.9	5.1
2010	2.5	6.9

3. Independent Practice: Birth Rates vs. Death Rates

This paired random sample from 22 Ohio counties shows the rates per 1,000 inhabitants.
(Source: County and City Data Book, 12th edition, U.S. Dept. of Commerce)

County ID	Birth	Death
CO-01	12.7	9.8
CO-02	13.4	14.5
CO-03	12.8	10.7
CO-04	12.1	14.2
CO-05	11.6	13.0
CO-06	11.1	12.9
CO-07	14.2	10.9
CO-08	12.5	14.1
CO-09	12.3	13.6
CO-10	13.1	9.1
CO-11	15.8	10.2
CO-12	10.3	17.9
CO-13	12.7	11.8
CO-14	11.1	7.0