

## Chapter 16 Group Project, Math 181

YOUR NAME: \_\_\_\_\_

Your group members: \_\_\_\_\_

In this project, you will learn how your name, sex, and birthdate are encoded in an Illinois state driver's license. If you have one, **don't take it out to look at!** You'll figure out the number and then check to see if it's correct.

### Part 1: Soundex Coding System

The **Soundex Coding System** is an encoding system for surnames that is used by the federal and state governments in the USA. The state of Illinois employs it to determine the first four digits of your driver's license. Here are the steps to the procedure, with my info as an example:

1. Write out the last names of your group members (including yourself).

*Reuter*

2. Rewrite them, but leave out all *h*'s and *w*'s.

*Reuter*

3. Rewrite your response to Problem 2. Under each letter, write down the corresponding number.

*Reuter*

*600306*

0: A, E, I, O, U, Y

1: B, F, P, V

2: C, G, J, K, Q, S, X, Z

3: D, T

4: L

5: M, N

6: R

4. Rewrite your response to Problem 3, but if adjacent letters have the same number, leave out all but the first letter with that number.

*Reter*

*60306*

5. Rewrite your response to Problem 4, but omit the first letter of the original name.

*eter*

*0306*

6. Rewrite your response to Problem 5, but leave out all the vowels (including *y*).

*tr*

*36*

7. Write out the first three number associated to the remaining letters of the names. If a name has less than three numbers left, add 0's on the end until it has three digits.

*360*

8. Put the first letter of the surname before the associated three-digit number.

*R360*

There are the first four entries of your Illinois state driver's license. Don't take it out yet to check! We'll do the whole license number first.

## Part 2: First Name and Middle Initial

The procedure for encoding first names is not nearly as complicated, although there are more tables to consult.

9. Write out the first names of your group members (including yourself).

*Victoria*

10. Check the following list of common names. If a name is on it, replace it with its associated number. If not, replace it with the number associated to the first letter of the name.

*860*

20	Albert	220	Elizabeth	560	Margaret
20	Alice	260	Florence	560	Martin
40	Ann	260	Frank	580	Marvin
40	Anna	300	George	580	Mary
40	Anne	300	Grace	600	Melvin
40	Annie	340	Harold	600	Mildred
40	Arthur	340	Harriet	680	Patricia
80	Bernard	360	Harry	680	Paul
80	Bette	360	Hazel	740	Richard
80	Bettie	380	Helen	740	Ruby
80	Betty	380	Henry	760	Robert
120	Carl	440	James	760	Ruth
120	Catherine	440	Jane	820	Thelma
140	Charles	440	Jayne	820	Thomas
140	Clara	460	Jean	900	Walter
180	Donald	460	John	900	Wanda
180	Dorothy	480	Joan	920	William
220	Edward	480	Joseph	920	Wilma

0	A	420	J	780	S
60	B	500	K	800	T
100	C	520	L	840	U
160	D	540	M	860	V
200	E	620	N	880	W
240	F	640	O	940	X
280	G	660	P	960	Y
320	H	700	Q	980	Z
400	I	720	R		

11. Write out the middle initial for each of your group members (including yourself), and use the following chart to replace it with a number.

*J=10*

1	A	10	J	17	S
2	B	11	K	18	T
3	C	12	L	18	U
4	D	13	M	18	V
5	E	14	N	19	W
6	F	14	O	19	X
7	G	15	P	19	Y
8	H	15	Q	19	Z
9	I	16	R		

12. Add your answers from Problem 10 to your answers from Problem 11 (making sure that the names are matched with the correct middle initial). If the answer is less than 100, add enough zeros to the front to make it a three-digit number.

*870*

These are the next three digits of your driver's license number. (Hang on, don't look at them yet!)

### **Part 3: Birth Date**

13. Write out the month and day of birth for each group member (including yourself).

*July 19*

14. Replace the month with the number of days that would come before it in the year if every month had 31 days.

*July=186*

15. Add the month and day numbers, and if the result is less than 100, add enough zeros to the front to make it a three-digit number..

*205*

16. For females, add 600 to the number from Problem 15.  
*805*

17. Write the last two digits of the birth year, with a dash between them, and put it before the number from Problem 15 (males) or 16 (females).  
*7-8805*

18. Now write out the answer to Problem 8, then a dash, then the answer to Problem 12, and finally the answer to Problem 17. This should be your driver's license number. (You can check it out now!)  
*R360-9607-8805*

### **Questions to consider (from driver's license project):**

Don't hand these in today. They will be fair game for the final, though, so make sure you think about them sometime.

1. Why do you think the Soundex Coding System assigns numbers to letters in the way it does?
2. Try some common misspellings of your last name. How are they coded by the Soundex system? Why does this happen?
3. Do you think the Soundex system works well for surnames that do not come from a Western European background? Are there particular ethnicities whose surnames might give the Soundex system difficulties?
4. The list of "common names" used in Part 2 seems odd. Are there names that shouldn't be on that list, but are? Are there names that should be on that list but aren't? Why do you think the list has these problems?
5. While most states use the Soundex system, the date algorithm is different for different states. Florida, for example, assumes that months have 40 days and adds 500 for females. Which method makes more sense to you? Why?
6. It is possible that different people end up with the same driver's license number. Under what circumstances could this happen?