

Brothers, Sisters, Nights Out

(adding and subtracting like terms)

| a. | Step | Algebra |
|----|---|------------------------|
| | 1. Write down how many brothers you have. | b |
| | 2. Double this number. | $2b$ |
| | 3. Add 3. | $2b + 3$ |
| | 4. Multiply by 5. | $10b + 15$ |
| | 5. Add in how many sisters you have. | $10b + 15 + s$ |
| | 6. Multiply by 10. | $100b + 150 + 10s$ |
| | 7. Add in how many nights you went out last week. | $100b + 10s + n + 150$ |
| | 8. Tell me the answer. | |

I can now tell you how many brothers you have, how many sisters and how many nights out you had last week.

The secret *Just subtract 150 from the final answer. You should have a 3 digit number (if you get a 2 digit number, there are 0 brothers). The first digit is the number of brothers, the second digit is the number of sisters and the last digit is the number of nights out.*

For example, if the final answer was 364, you would mentally subtract $364 - 150 = 214$. You would announce "You have 2 brothers, 1 sister and went out 4 times last week."

- b. This trick will work almost all of the time. However the trick doesn't work if you have more than 9 sisters! Explain why.