

YEAR PROBLEMS – RULES OF THE GAME for the YEAR YOU WERE BORN

1. Use all the digits in the year your were born in each problem. The zero can be used if you need it, but you don't have to show it if it's not needed since you could just add or subtract a zero in any problem.
2. Digits can be used in any *order*, and may be combined to make two or three digit numbers (1 and 2 could be 21 or you could make 102).
3. Try to use all four basic operations: add, subtract, multiply, and divide. Also use fractions, exponents, radicals, factorials, summations.
4. You can use exponents and the exponents are *free*. Those tiny numbers *don't* count as the numbers you are required to use in each problem.
5. You are allowed to use the zero exponent. For this game any number to the zero power is worth one (1). However, 0^0 equals zero. Examples: 2^0 means $2 \times 2 \times 2$, which equals 8. $2^5 = 32$ $10^2 = 100$
6. You may use radicals, square roots, or cube roots.

Examples: $\sqrt{2x-5} - \sqrt{x-1} = 1$ $2 \text{ squared} = 2^2 = 2 \times 2 = 4$ Cube root of 216 is 6 squared

7. Factorials can be useful. If the symbol that looks like an exclamation point (!) is placed after a number, the value of the expression is the product of that number multiplied by all the numbers below that number down to one.

Examples: $4! = 4 \times 3 \times 2 \times 1 = 24$ or you can use it this way... $(2^2)! = 24$

8. For this game we will use the Greek Letter sigma to mean a simplified "summation." Placing a number above the sigma means the value of that expression will be the SUM of that number above the sigma, plus all the numbers below that number down to 0. Example: a 4 placed above $\Sigma = 4+3+2+1=10$
9. Always use ORDER OF OPERATIONS using parentheses where needed. Exponents, radicals, summations, factorials, multiplication, and division (left to right) BEFORE adding and subtracting (left to right).
10. Have fun!

Name: _____ Year I was born _____ Use all the digits in the year you were born to create equations that equal all of the numbers from 1-50.

1	11	21	31	41
2	12	22	32	42
3	13	23	33	43
4	14	24	34	44
5	15	25	35	45
6	16	26	36	46
7	17	27	37	47
8	18	28	38	48
9	19	29	39	49
10	20	30	40	50