NUMBER NAME EQUATIONS

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123 can be expressed as a number name in one of two basic ways: ONE HUNDRED (AND) TWENTY THREE (the British include and, the Americans exclude and) or ONE TWO THREE. Dmitri Borgmann illustrated both in the November 1985 Colloquy. Assigning A=1, B=2, etc., he constructed TWO HUNDRED AND FIFTY ONE = 251, ONE FOUR SIX = 146 and TWO OUGHT OUGHT = 200. (He defended the last one by noting that ought is given as a variant of aught in the Collegiate dictionaries).

The only other English-language example that I know of is TWO HUNDRED AND FIFTY NINE = 259. However, by using an alternative number name, FOURTEEN DOZEN = 168.

Each of these five examples consists of a single phrase euating alphanumerically to the number it describes. With the exception of 200 they are, to my mind, perfect examples of the genre. By a perfect example, I mean a bald statement unencumbered by an unnecessary word or words, one which is not presented as an awkward phrase purely in the interest of making it balance.

So what other type of alpha-numeric equations can we explore? I chose to try equating pairs of numerical phrases. The rules require (a) that the two phrases are, by meaning, synonymous and (b) that, assigning A=1, B=2 etc., the sum of the letters in one phrase is equal to the sum of the letters in the other phrase. The phrases which follow involve the functions addition, subtraction, multiplication and division.

When the two phrases use the same function, it can be represented as a symbol:

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SEVEN - ONE (99) = TEN - FOUR (99)
FIFTEEN - NINE (107) = EIGHT - TWO (107)
EIGHT - SEVEN (114) = THREE - TWO (114)
FIFTY FOUR - THIRTY THREE (282) = FORTY NINE - TWENTY EIGHT (282)
NINETEEN + SIX (138) = EIGHTEEN + SEVEN (138)
EIGHTY FIVE + SIXTY ONE (247) = EIGHTY NINE + FIFTY SEVEN (247)
FIFTY TWO + EIGHTY EIGHT (247) = NINETY ONE + FORTY NINE (247)
ONE HUNDRED + FORTY FIVE (234) = EIGHTY SIX + FIFTY NINE (234)
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Some phrases incorporate more than one function:

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NINE + THREE - TWO (156) = EIGHT + SEVEN - FIVE (156)
SEVEN + FIVE - NINE (149) = NINE + TWO - EIGHT (149)
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EIGHT + THREE = TWO (163) = NINE + TWO - EIGHT (163)
THREE + THREE - FIVE (154) = SIX + FOUR - NINE (154)
FIVE + FIVE - TWO (142) = SIX + THREE - ONE (142)

Where the two phrases use different functions, each function is represented by a word whose alpha-numerical value (e.g. PLUS = 68) must be added to the value of the number names:

ONE PLUS FOUR (162) = SIX MINUS ONE (162)
FOUR PLUS FOUR (188) = EIGHTEEN MINUS TEN (188)
THIRTEEN PLUS TWO (225) = TWENTY MINUS FIVE (225)
TWO TIMES THREE (180) = THREE PLUS THREE (180)
SEVEN OVER SEVEN (190) = THREE MINUS TWO (190)

In each of these eighteen examples, the phrases equate perfectly, in accordance with the rules. By way of contrast, the multiplication FIVE TIMES FIVE (150) = A TWENTY FIVE (150) is not quite perfect as it relies on the inclusion of the indefinite article to make it balance.

So far the content of the phrases has been concerned exclusively with whole numbers. But why not try introducing decimals into the exercise? For this purpose, I decided to concentrate on one specific decimal example, that of dividing odd numbers by two and searching for number names A and B which would balance the equation A OVER TWO = B POINT FIVE. OVER TWO = 118 and POINT FIVE = 116, so the search was on for number names where B = A + 2. Inevitably I started by finding several imperfect examples whose totals differed by one, requiring the indefinite article to make them balance. But two of these pairs are worth a mention because they both use the same numbers but in a different order:

THREE FIVE NINE OVER TWO (258) = A ONE SEVEN NINE POINT FIVE (258)
THREE NINE FIVE OVER TWO (258) = A ONE NINE SEVEN POINT FIVE (258)

Persistence eventually paid off, however, in the shape of

TWO NINE ONE OVER TWO (252) = ONE FOUR FIVE POINT FIVE (252)

Instead of OVER TWO (118) I tried using DIVIDED BY TWO (142). Now the number names had to satisfy B = A + 26 (142 - 116). Yet more near-misses were followed by

SIX SIX NINE DIVIDED BY TWO = THREE THREE FOUR POINT FIVE (288)

To date all the whole number and decimal pairs of phrases have specified at least one of the four basic functions, either in symbol form or in words. But some phrase pairs achieve their objective without spelling out any functions. Consider the fractions TWO EIGHTHS = ONE QUARTER (134) and SIX NINTHS = TWO THIRDS (136). And using TWICE instead of TIMES TWO, one has TWICE THIRTEEN = TWENTY SIX (159).

These two Roman letter numbers use neither functions nor multi-word phrases: VIII (49) = EIGHT (49), XVIII (73) = EIGHTEEN (73).

The aim of this article has been to introduce the concept of numerically synonymous pairs of phrases which also equate alpha-numerically. It does not claim to have exhausted the topic by any means. There are other terms which might be used, including SQUARED (85), MULTIPLIED BY (148), CUBED (35), FACTORIAL (85), HALF (27), etc. Indeed, from scanning these terms alone, it is possible to see the cheaters phrase FACTORIAL ONE (119) = ONE SQUARED (119)! There are an infinite number of numerical phrases. Any one of them might have a synonymous partner with the same total.

Finally, I would pose the following question: what might be the ultimate goal in this particular equating exercise? For some, it may well be equating a pair of long and/or complex phrases. For me, I think it would have to be finding four synonymous phrases each of which uses one of the four functions. Alas, it was not to be, but here is a set of three: SEVEN PLUS TWO (191) = EIGHTEEN MINUS NINE (191) = EIGHTEEN OVER TWO (191).

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What is the common expression A--- and B--- the C--- of D---?
What common six-letter word has its meaning reversed when
    its first letter is changed from C to H?
What word meaning "stole" is composed of two successive names
    for places to sleep?
Name a common six-letter word that contains two soft Gs
Change one letter in the surname of a US president and rearrange
    the letters to obtain another US president
Drop the consecutive letters ONG in the name of one animal to
    obtain the name of another animal
What common seven-letter word contains only one vowel and no S?