

How Do You Pronounce Dozenals?

BY GENE ZIRKEL

Introduction

This article was inspired by a question from a high school senior, Steven Keyes: “How would one pronounce the names of dozenal numbers, such as 11; (a baker's dozen) or X5; (the cube of five)?”

We begin by reprinting the unsigned “Mo for Megro” item in our *Bulletin*, WN 0, VOL. 1; №. 1; p. 10;.

The item followed a report on committees including the Committee on Weights and Measures of which Editor Ralph Beard was the chair. It does not seem to be a part of that report, for it has a separate entry in the table of contents. It was most likely written by Editor Beard.

Shortly after Andrews' 1934 article appeared in the *Atlantic Monthly*, our founders began to write to one another in what Beard called “a round robin” of letters. This first issue of our *Bulletin* appeared dek years later. From the report it is clear that they had been discussing nomenclature among themselves during that time.

The following is the original article reprinted in its entirety:

~ Mo For Megro ~

For several years we have used the term “megro” to represent 1,000; this being a shortened name for meg-gross, or great gross. As it becomes clear that the names for the first three powers of the “DO” will also be used as prefixes for similar relationships among the weights and measures, (as in doyard, and groyard), it seems advisable that the two-syllabled “megro” be further shortened to “MO”. The ascending progression will then be: DO, GRO, and MO.

While there has been no special practice as to the descending succession, there has been some use of “doth” to represent one-twelfth, and “groth” as one part of a gross. In place of this awkward construction, the use of the prefix “E” has been accepted as meaning “of, or out of”. Thus, one “EDO” means one out of a dozen, or one-twelfth. And in place of “percent” we have “EGRO”. The ascending and descending progressions are:

TABLE I

| | | |
|-----------------------|------------|---------|
| 1; ONE | | |
| 10; DO | 0;1 | EDO |
| 100; GRO | 0;01 | EGRO |
| 1,000; MO | 0;001 | EMO |
| 10,000; DO-MO | 0;000,1 | EDO-MO |
| 100,000; GRO-MO | 0;000,01 | EGRO-MO |
| 1,000,000; BI-MO | 0;000,001 | EBI-MO |
| 1,000,000,000; TRI-MO | and so on. | |

~ End of Original Article ~

Pronouncing Whole Numbers using the above system:

Just as a base dek number such as 345,670,000 is pronounced “3 hundred forty 5 MIL-LION, 6 hundred seventy THOUSAND”, so too the dozenal number £8,65X,300 is pronounced “el do 8 BI-MO, 6 gro 5 do X MO, 3 gro”.

Some examples:

| | |
|----------------|--------------------------------|
| 40,101,000,000 | 4 do TRI-MO, 1 gro 1 BI-MO |
| 3X,030,504 | 3 do X BI-MO, 3 do MO, 5 gro 4 |
| 5,011,000 | 5 BI-MO, do 1 MO |
| 346,722 | 3 gro 4 do 6 MO, 7 gro 2 do 2 |

Of course just as a base dek 456,000 quickly changes from ‘4 hundred fifty 6 thousand’, to simply ‘456 thousand’, so too with a little practice the above examples quickly become:

| |
|-----------------------|
| 40 TRI-MO, 101 BI-MO |
| 3X BI-MO, 30 GRO, 504 |
| 5 BI-MO, 11 MO |
| 346 MO, 722 |

Fractionals

The table in the original article, which we’ve labeled “Table 1”, given to us by our founders, is very easy to use when dealing with fractionals. Just as in base dek, one merely refers to the position of the rightmost digit when reading fractionals, thus:

| | |
|---------|-------------------------------|
| 0.34 | is 34 hundredths |
| 0.056 | is 56 thousandths |
| 0.70008 | is 70,008 hundred thousandths |

So too in dozenals we refer to the position of the last digit, thus:

| | |
|---------|-------------------------------|
| 0;34 | is 3 do 4 egro (or 34; egro.) |
| 0;056 | is 56; emo |
| 0;70008 | is 70,008; egro-mo |

An Alternate Proposal for Whole Numbers

Table 1 partially answers the question Steven asked. However in a world of trillion dollar and larger budgets, what about extremely large numbers, words much larger than a tri-mo such as are used in astronomy?

Americans call a ‘1’ followed by 6 zeros a million, by 9 zeros a billion, and by a dozen zeros a trillion. The initial m, b, t of these words is copied in the second column of Table 1 in mo, bi-mo and tri-mo. However, this association of initial letters limps.

I suggest the following as a simpler and regular method of naming duodecimal integers similar in simplicity to that of duodecimal fractionals.

TABLE 2

| | | | |
|---------------|-----------|-----------|--------------------|
| 10 | do | 10^x | do mo mo mo |
| 100 | gro | 10^6 | gro mo mo mo |
| 1 000 | mo | 10^{10} | mo mo mo mo |
| 10 000 | do mo | 10^{11} | do mo mo mo mo |
| 100 000 | gro mo | 10^{12} | gro mo mo mo mo |
| 1 000 000 | mo mo | 10^{13} | mo mo mo mo mo |
| 10 000 000 | do mo mo | 10^{14} | do mo mo mo mo mo |
| 100 000 000 | gro mo mo | 10^{15} | gro mo mo mo mo mo |
| 1 000 000 000 | mo mo mo | 10^{16} | mo mo mo mo mo mo |
| | | : | <i>etc.</i> |

Of course, this notation can easily be simplified to something such as using a subscript to indicate the number of ‘mo’s in the way that we abbreviate “cubic inches” as “in³”.

| | | | |
|---------------|---------------------|-----------|---------------------|
| 10 | do | 10^x | do mo ₃ |
| 100 | gro | 10^6 | gro mo ₃ |
| 1 000 | mo | 10^{10} | mo ₄ |
| 10 000 | do mo | 10^{11} | do mo ₄ |
| 100 000 | gro mo | 10^{12} | gro mo ₄ |
| 1 000 000 | mo ₂ | 10^{13} | mo ₅ |
| 10 000 000 | do mo ₂ | 10^{14} | do mo ₅ |
| 100 000 000 | gro mo ₂ | 10^{15} | gro mo ₅ |
| 1 000 000 000 | mo ₃ | 10^{16} | mo ₆ |
| | | ⋮ | <i>etc.</i> |

How to Pronounce Large Numbers

- 1.) In the examples below, separate the number into what is left of the leftmost comma and what is to the right.
- 2.) Determine the number of triples (T) to the right.
- 3.) Utter the left side concatenated with “mo sub T”.
- 4.) Repeat this process with the right side until the right side is empty.

Thus to pronounce a given string of digits such as 12,345,678;

Separate “12” from “345,678” which has 2 triples. This yields “12 mo₂” with 345,678 remaining.

Repeat with “345,678” separating “345” and “678” obtaining “345 mo” with 678 remaining.

Repeat with “678” separating “678” from nothing obtaining “678” with nothing remaining.

Concatenate your results saying “12 mo₂, 345 mo, 678” or “do 2-mo-mo, 3-gro 4-do 5-mo, 6-gro 7-do 8”.

Conversely, How to Expand Verbal Expressions

Example: Expand “3-gro 4-mo₃, 5-do 6-mo”.

First we recognize that the first 3 digits preceding the largest subscript are “304” and the remaining digits must come in groups of three.

Next we notice that the largest subscript (3) indicates that the number has more than 3×3 and at most $3 \times (3 + 1)$ digits. That is dek, el, or do digits. We have already accounted for three digits, so that leaves 7, 8, or 9 more, and only nine has exactly 3 groups of digits. Thus so far we have “304,*abc,def,ghi*.”

Repeating this reasoning, “5-do 6-mo” starts with “56” and mo has 1 for a subscript. Thus we have more than 3×1 and at most 3×2 digits that is 4, 5, or 6. Since we have already accounted for two digits that leaves 2, 3, or 4 more and only 3 has exactly 1 group.

Thus we have the rest of the number—“56,000”. Concatenating our results we obtain “304,*abc,d56,000*” and thus 304,000,056,000. ❖❖❖

⋮⋮⋮⋮⋮

Got a friend into numbers who would appreciate a sample copy of our *Bulletin*? Send in his or her name and electronic address—we’ll send one their way.