Large Numbers

Manipulating numbers that contain lots of zeros.

Letter Symbols

Using letters for groups of zeros can make large numbers more manageable.

Letters	Number	Name	Zeros	Equivalent
u	1	unit (one)	0	--
t	10	ten	1	--
H	100	Hundred	2	10 tens (tt)
T	1,000	Thousand	3	10 Hundred (tH)
tT	10,000	ten Thousand	4	100 Hundred (HH)
HT	100,000	Hundred Thousand	5	--
M	1,000,000	Million	6	1000 Thousand (TT)
tM	10,000,000	ten Million	7	--
HM	100,000,000	Hundred Million	8	--
b	1,000,000,000	billion	9	1000 Million (TM)
tb	10,000,000,000	ten billion	10	--
Hb	100,000,000,000	Hundred billion	11	--
Tr	1,000,000,000,000	Trillion	12	1000 billion (Tb)

BrainAids

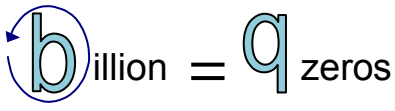
Zeros: 0 00 000 0000 00000

Letters: t H T tT HT

Use T's as building blocks:
TT = Million
TTT = billion
TTTT = Trillion

- Thousand = Three zeros
- Million = 6 zeros (M6 is a branch of the British Secret Service)

- billion = 9 zeros (rotate the b into a 9)



- Trillion = Twelve zeros
- Six-figure income: $100,000 to $999,999
- Seven-figure income: $1,000,000 to $9,999,999

Digit Separators

In the United States and various countries, a *comma* is used to separate large numbers into three-digit groups. A *period* is used as the decimal-point separator.

1,000,000.00

In many European and other countries, it's just the opposite!

1.000.000,00

Large Number Calculation Options

A) Letter Symbols

5,000 × 6,000

5T × 6T

30TT = 30M = 30,000,000

10,000 × 100,000

tT × HT

tHTT = TTT = b = 1,000,000,000

B) Floating Bubbles

Imagine zeros as soap bubbles that float away then back.

5,000 × 6,000

5 × 6

30,000,000

10,000 × 100,000

1 × 1

1,000,000,000

C) Scientific Notation

5,000 × 6,000

(5×10^3) (6×10^3)

30×10^6 = 30,000,000

Learn more in the Scientific (Squeeze) Notation lesson!

10,000 × 100,000

(1×10^4) (1×10^5)

1×10^9 = 1,000,000,000

Your Turn!

Solve the following using Letter Symbols. Verify your answers using Floating Bubbles.

Letter Symbols	Floating Bubbles
3,000 × 22,000	3,000 × 22,000
50,000 × 700,000	50,000 × 700,000

Answers: 3T × 22T = 66TT = 66M = 66,000,000; 5tT × 7HT = 35tHTT = 35TTT = 35b = 35,000,000,000