QBasic Expressions

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Mathematical Equations

Expressions

- QBasic Expressions
  - mathematical formulas
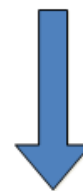 - follows the format you know

Numeric Operators in QBasic

Operator	Name
^	Exponent
*	Multiplication
/	Division
+	Addition
−	Subtraction & Unary Minus

Precedence Levels:
Highest to Lowest

Operators	Precedence Name	
(...)	Sub expression	**Highest**
^	Exponent	
* , /	Multiplication & Division	
+ , −	Addition & Subtraction	**Lowest**

Calculate Results

PRINT (11 * 2) + 8 * 4 − 7
PRINT   22   + (8 * 4) − 7
PRINT   (22 +   32) − 7
PRINT   (54   − 7)
PRINT   47

Calculate Results #2

PRINT 5 + 18 / (3 ^ 2) * 2 − 1
PRINT 5 + (18 /   9)   * 2 − 1
PRINT 5 +   (2   * 2) − 1
PRINT (5   +   4) − 1
PRINT   (9   − 1)
PRINT   8

Calculate Results #3

```
PRINT 7 + 32 / 2 ^ 4 * (3 - 1)
PRINT 7 + 32 / (2 ^ 4) *     2
PRINT 7 + (32 /   16)  *     2
PRINT 7 +     (2           *     2)
PRINT (7 +                   4)
PRINT   11
```

Calculate Results With Variables

```
LET X = 10
LET Y = 2
PRINT X * 3 + (-Y)
PRINT (X * 3)+ -2
PRINT    (30   + -2)
PRINT            28
```

Calculate Results

Using the Order of Operations

The Order of Operations

1. Evaluate expressions within parentheses first.
2. Perform all powers.
3. Complete all multiplication and division, working from left to right.
4. Perform addition and subtraction last, working left to right.

Example: $2 \cdot 3^2 - 3 \cdot 5 + 4$

$2 \times 3^2 - 3 \times 5 + 4$	1. Exponents are executed first.
$2 \times 9 - 3 \times 5 + 4$	2. Then multiplications.
$18 - 15 + 4$	3. Next subtraction.
$3 + 4$	4. Then addition
7	

Example Program 1

```
DIM X, Y, Z
LET X = 10
LET Y = 6          20              2
LET Z = X * 2 - 12 / Y
PRINT "The result:"; Z
```

Example Program 1
Output

```
The result: 18
```

Example Program 2

```
DIM X, Y, Z
LET X = 2
LET Y = 5
LET Z = X*Y-(7-4)/3
PRINT "The result is"; Z
```

Example Program 2
Output

```
The result is 9
```

Example Program 3

```
DIM T1, T2, Ans
LET T1 = 5
LET T2 = 4
LET Ans = T1*T2 + 5 - 6/3
PRINT "Answer:" ; Ans
```