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**17 Co Calculator**

**Test Case**

**Version 1.0**

17 Co Calculator	Version: 1.0
Test Case	Date: 02/Dec/23
QA00001	

## Revision History

Date	Version	Description	Author
03/Dec/23	1.0	Initial version	17 Co. Team

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## Test Case

### 1. Purpose

The purpose of the Test Case Specification is to document the various test cases used and their results for the 17. Co Calculator. Each test case should have the input, expected output, and what the 17. Co Calculator displays. Then it will be categorized as PASS if they match and FAIL if they don't.

This document should be used to refine and fix faults with 17. Co Calculator before final implementation is completed.

### 2. Test Cases

Test Case ID	Test Case Description	Test Data	Expected Result	Actual Result	Pass/Fail
TCMS0001	Testing basic addition	3+4	7	7	PASS
TCMS0002	Subtraction with parentheses	8-(5-2)	5	5	PASS
TCMS0003	Multiplication and division order	10*2/5	4	4	PASS
TCMS0004	Exponents	2^3	8	8	PASS
TCMS0005	PEMDAS Test	4*(3+2)%7-1	5	5	PASS
TCMS0006	Extra parentheses	((2+3))+(((1+2)))	8	8	PASS
TCMS0007	PEMDAS w/ extra parentheses	((5 * 2) - ((3 / 1) + ((4 % 3))))	6	6	PASS
TCMS0008	Nested parentheses	((2 ^ (1 + 1)) + ((3 - 1) ^ 2)) / ((4 / 2) % 3)	4	4	PASS
TCMS0009	Mix of needed and unneeded parenthesis	(((((5 - 3))) * (((2 + 1))) + ((2 * 3))))	12	12	PASS
TCMS0010	Extra parentheses with division	((9 + 6)) / ((3 * 1) / (((2 + 2))) - 1)	-60	-60	PASS
TCLS0001	Negative number raised to an exponential power	-2^3	-8	-8	PASS
TCLS0002	Negative number raised to a negative exponential power	-2^(-3)	-0.125	-0.125	PASS
TCLS0003	Improperly matched parentheses	(2+2))	Invalid	Invalid	PASS
TCLS0004	Parenthesis with no numbers	()	Invalid	Invalid	PASS
TCLS0005	Improper parentheses syntax	)25(	Invalid	Invalid	PASS
TCLS0006	Entering a number	800	800	800	PASS
TCLS0007	Extra unary operators on a number	+++++---8	-8	-8	PASS
TCLS0008	Extra unary operators in an expression	3+++++-----2	5	5	PASS

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TCLS0009	Undefined case	0/0	Invalid	Nan ( <i>now fixed</i> )	PASS
TCLS0010	Improper multiplication syntax	3*	Invalid	Invalid	PASS
TCBC0001	Expressions as an exponent	4^(6/2)	64	64	PASS
TCBC0002	Expression as an exponent of an expression	(3+6%4)^(4*5/10)	25	25	PASS
TCBC0003	Negative unary operator on an expression raised to an expression	-(3+6%4)^(4*5/10+1)	-125	-125	PASS
TCBC0004	PEMDAS test with all operators	5*10%3-4/2+(4-2)^3	8	8	PASS
TCBC0005	Number raised to the zero power	7^0	1	1	PASS
TCBC0006	Negative unary operator on a positive number to the zero power	-4^(3-4+1)	-1	-1	PASS
TCBC0007	Negative number raised to the zero power	(-4)^(5%3-2)	1	1	PASS
TCBC0008	Exponents with extra parenthesis	9^(((5+3)-2))	531441	531441	PASS
TCBC0009	Exits the program	exit	[Terminates the program]	[Terminates the program]	PASS
TCBC0010	Enters "exit" incorrectly	exil	Invalid	Invalid	PASS
TCHV0001	Large number multiplication	123456789*987654321	1.22e+17	1.22e+17	PASS
TCHV0002	Roots of negatives	(-9)^(1/2)	Error	Nan ( <i>now fixed</i> )	PASS
TCHV0003	Small number multiplication	1/200000 * 1/200000	2.5e-11	2.5e-11	PASS
TCHV0004	Mod with division	20%3*5	10	10	PASS
TCHV0005	Zero as operand	0*10-5+0/3	-5	-5	PASS
TCHV0006	Negative powers	9^(-1)	0.111	0.111	PASS
TCJB0001	Unary arithmetic operations	+(-2)*(-3)-((-4)/(+5))	6.8	6.8	PASS
TCJB0002	Unary operators and parenthesis	-(+1)+(2)	1	1	PASS
TCJB0003	Unary operators and negated parenthesis	-(-(-3))+(-4)+(5)	-2	-2	PASS
TCJB0004	Unary operators and exponentiation	+2^(-3)	0.125	0.125	PASS
TCJB0005	Unary operators and exponentiation and parentheses	-(+2)*(+3)-(-4)/(-5)	-6.8	-6.8	PASS
TCJB0006	Multiple unary operators	+3	-3	-3	PASS
TCJB0007	Multiple unary operators and parenthesis	-(+(-(-3)))	3	3	PASS

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TCJB0008	Multiple unary operators and exponentiation	$- (+3)^{- (+ (-3))}$	-27	-27	PASS
TCJB0009	Multiple unary operators and exponentiation and division	$+ (-3)^{+ (- + (-3))} / + (-3)$	9	9	PASS
TCJB0010	Multiple unary operators and exponentiation and division and nested parenthesis	$- + (+ (-3)^{+ (- + (-3))} / + (-3)) / (+ (-3)^{- (-3)})$	243	243	PASS