

### Expression Evaluator Test Cases

Test #	Description	Test Data	Expected	Actual	Pass/Fail
TC 01	Addition	$3+4$	7	7	Pass
TC 02	Subtraction With Parenthesis	$8-(5-2)$	5	5	Pass
TC 03	Multiply and Divide	$10*2/5$	4	4	Pass
TC 04	Exponentiation	$2**3$	8	8	Pass
TC 05	Mixed Operators	$4*(3+2)\%7-1$	5	5	Pass
TC 06	Complex Addition with Extraneous Parentheses	$((2 + 3))) + (((1 + 2)))$	8	8	Pass
TC 07	Mixed Operators with Extraneous Parentheses	$((5 * 2) - ((3 / 1) + ((4 \% 3)))$	6	6	Pass
TC 08	Nested Parentheses with Exponents	$((2 ** (1 + 1)) + ((3 - 1) ** 2)) / ((4 / 2) \% 3))$	4	4	Pass
TC 09	Combination of Extraneous and Necessary Parentheses	$(((((5 - 3))) * ((2 + 1))) + ((2 * 3))))$	12	12	Pass
TC 10	Extraneous Parentheses with Division	$((9 + 6)) / ((3 * 1) / (((2 + 2))) - 1)$	-60	-60	Pass
TC 11	Combining Unary Operators with Arithmetic Operations	$+(-2) * (-3) - ((-4) / (+5))$	6.8	6.8	Pass
TC 12	Unary Negation and Addition in Parentheses	$-(+1) + (+2)$	1	1	Pass
TC 13	Negation and Addition with Negated Parentheses	$-(-(-3)) + (-4) + (+5)$	-2	-2	Pass
TC 14	Unary Negation and Exponentiation	$+2 ** (-3)$	0.125	0.125	Pass

TC 15	Combining Unary Operators with Parentheses	$-(+2) * (+3) - (-4) / (-5)$	-6.8	-6.8	Pass
TC 16	Unmatched Parentheses	$2 * (4 + 3 - 1$	Invalid	Invalid	Pass
TC 17	Operators Without Operands	$* 5 + 2$	Invalid	Invalid	Pass
TC 18	Incorrect Operator Usage	$4/0$	Invalid	Invalid	Pass
TC 19	Missing Operator	$5(2+3)$	Invalid	Invalid	Pass
TC 20	Invalid Characters	$7\&3$	Invalid	Invalid	Pass
TC 21	Mismatched Parentheses	$((((3+4)-2)+(1)$	Invalid	Invalid	Pass
TC 22	Invalid Operator Usage	$((5+2/(3*0))$	Invalid	Invalid	Pass
TC 23	Invalid Operator Sequence	$((2-)1+3)$	Invalid	Invalid	Pass
TC 24	Missing Operand	$((4*2)+(-))$	Invalid	Invalid	Pass
TC 25	Invalid Characters	$((7*3)^2)$	Invalid	Invalid	Pass
TC 26	Complex Nested Parentheses with Mixed Operators	$((((10 + 5) * 2) - ((4 / 2) ** 3))$	22	22	Pass
TC 27	Floating-Point Multiplication	$2.5 * 4.2$	10.5	10.5	Pass
TC 28	Large Numbers with Addition and Subtraction	$1000000 + 500000 - 200000$	1300000	1300000	Pass
TC 29	Decimal Division	$22.5 / 4.5$	5	5	Pass
TC 30	Negative Numbers in Multiplication	$-5 * -10$	50	50	Pass
TC 31	Simple Addition with Three Operands	$1 + 2 + 3$	6	6	Pass
TC 32	Nested Exponentiation	$(2**3)**2$	64	64	Pass

TC 33	Modulus Operator with Large Numbers	$100000 \% 300$	100	100	Pass
TC 34	Division Resulting in Zero	$0 / 5$	0	0	Pass
TC 35	Complex Parentheses Arrangement	$(( (6 + 3) * 2) / (4 - 2))$	9	9	Pass
TC 36	Large Negative Subtraction	$-1000 - 500$	-1500	-1500	Pass
TC 37	Combining Parentheses and Modulus	$(8 + 2) \% (3 * 2)$	4	4	Pass
TC 38	Simple Exponentiation with Large Base	$10^{**3}$	1000	1000	Pass
TC 39	Multiple Mixed Operators with Division	$(4 * 2) + (6 / 3)$	10	10	Pass
TC 40	Adding Zero	$5 + 0$	5	5	Pass
TC 41	Invalid Floating-Point Format	$5..6 + 4$	Invalid	Invalid	Fail
TC 42	Missing Operand in Mixed Operators	$5 + - / 3$	Invalid	Invalid	Pass
TC 43	Invalid Modulus Usage	$5 \% 0$	Invalid	Invalid	Pass
TC 44	Multiple Operators Without Operand	$5 ** ** 2$	Invalid	Invalid	Pass
TC 45	Invalid Characters Mixed with Valid Operators	$5 + 3 @ 4$	Invalid	Invalid	Pass
TC 46	Empty Parentheses	$5 + () - 3$	Invalid	Invalid	Pass
TC 47	Extra Closing Parentheses	$5 + 3 * 2))$	Invalid	Invalid	Pass
TC 48	Invalid Use of Parentheses with	$5 + (3 \% )$	Invalid	Invalid	Pass

	Modulus				
TC 49	Parentheses with Nested Invalid Characters	$((3+4)-x)$	Invalid	Invalid	Pass
TC 50	Modulus with Large Negative Numbers	$-100000 \% 300$	200	-100	Fail
TC 51	Modulus with Decimals	$10.5 \% 3.2$	0.9	.9	Pass
TC 52	Subtraction and Multiplication Without Parentheses	$5 - 3 * 2$	-1	-1	Pass
TC 53	Mixing Decimals, Exponents, and Modulus	$3.5 ** 2 \% 2$	0.25	.25	Pass
TC 54	Alternating Unary Operators with Exponentiation	$(-2) ** 3$	-8	-8	Pass
TC 55	Exponentiation with Large Negative Exponent	$2**-10$	0.00097 65	0.00097 65	Pass
TC 56	Division with Negative Divisor	$10 / -2$	-5	-5	Pass
TC 57	Exponentiation Resulting in One	$10**0$	1	1	Pass
TC 58	Decimal Multiplication Resulting in Zero	$0.0 * 1.0$	0	0	Pass
TC 59	Unbalanced Parentheses with Unary Negation	$-(3 + 2$	Invalid	Invalid	Pass
TC 60	Modulus with Negative Dividend and Positive Divisor	$-17 \% 4$	3	-1	Fail