

**Calc-U-Later**  
**Test Case**  
Version <1.0>

Calc-U-Later	Version: <1.0>
Test Case	Date: 03/12/2023
Part 5	

## Revision History

Date	Version	Description	Author
11/21/2023	1.0	Created Test Cases Document	Sabeen, James, Brett, Daniel, Kaden, Anna

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## Test Case

### 1. Purpose

This Test Case Specification document for the Calc-U-Later defines a test case for an item that should be tested.

Test Case ID	Test Case Description	Test Data	Expected Results	Actual Results	Pass/Fail
test1	Evaluate expression	$(2+4)-(3+9)-4\%2$	-6	-6	Pass
test2	Evaluate expression	$(1+2)-(4+5)-2\%1$	-6	-6	Pass
test3	Evaluate expression	$(2+4)-(5+7)-4\%2$	-6	-6	Pass
test4	Evaluate expression	$((4))+2$	6	6	Pass
test5	Evaluate expression	$(4+2)((3)$	Invalid Parenthesis	Invalid Parenthesis	Pass
test6	Evaluate expression	$4^{(4-3\%1)}$	256	256	Pass
test7	Evaluate expression	$(6+12)-(9+15)-12\%6$	-6	-6	Pass
test8	Evaluate expression	$(7+14)-(10+17)-14\%7$	-6	-6	Pass
test9	Evaluate expression	$20/(5^3)\%(0)$	Cannot mod 0	Cannot mod 0	Pass
test10	Evaluate expression	$((5*2)-((3/1)+((4\%3))))$	6	6	Pass
test11	Evaluate expression	$((2^{(1+1)})+((3-1)^2))/((4/2)\%3))$	4	4	Pass
test12	Evaluate expression	$7+a$	Invalid Character	Invalid Character	Pass
test13	Evaluate expression	$(12+24)-(15+27)-24\%12$	-6	-6	Pass

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test14	Evaluate expression	$(((((5-3))) * (((2+1))) + ((2*3))))$	12	12	Pass
test15	Evaluate expression	$(14+28)-(17+31)-28\%14$	-6	-6	Pass
test16	Evaluate expression	$(15+30)-(18+33)-30\%15$	-6	-6	Pass
test17	Evaluate expression	$(16+32)-(19+35)-32\%16$	-6	-6	Pass
test18	Evaluate expression	$(17+34)-(20+37)-34\%17$	-6	-6	Pass
test19	Evaluate expression	$(18+36)-(21+39)-36\%18$	-6	-6	Pass
test20	Evaluate expression	$(19+38)-(22+41)-38\%19$	-6	-6	Pass
test21	Evaluate expression	$(20+40)-(23+43)-40\%20$	-6	-6	Pass
test22	Evaluate expression	$(21+42)-(24+45)-42\%21$	-6	-6	Pass
test23	Evaluate expression	$(22+44)-(25+47)-44\%22$	-6	-6	Pass
test24	Evaluate expression	$(23+46)-(26+49)-46\%23$	-6	-6	Pass
test25	Evaluate expression	$(24+48)-(27+51)-48\%24$	-6	-6	Pass
test26	Evaluate expression	$(25+50)-(28+53)-50\%25$	-6	-6	Pass
test27	Evaluate expression	$(26+52)-(29+55)-52\%26$	-6	-6	Pass
test28	Evaluate expression	$(27+54)-(30+57)-54\%27$	-6	-6	Pass

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test29	Evaluate expression	(28+56)- (31+59)- 56%28	-6	-6	Pass
test30	Evaluate expression	(29+58)- (32+61)- 58%29	-6	-6	Pass
test31	Evaluate expression	(30+60)- (33+63)- 60%30	-6	-6	Pass
test32	Evaluate expression	(31+62)- (34+65)- 62%31	-6	-6	Pass
test33	Evaluate expression	(32+64)- (35+67)- 64%32	-6	-6	Pass
test34	Evaluate expression	(33+66)- (36+69)- 66%33	-6	-6	Pass
test35	Evaluate expression	(34+68)- (37+71)- 68%34	-6	-6	Pass
test36	Evaluate expression	(35+70)- (38+73)- 70%35	-6	-6	Pass
test37	Evaluate expression	(36+72)- (39+75)- 72%36	-6	-6	Pass
test38	Evaluate expression	(37+74)- (40+77)- 74%37	-6	-6	Pass
test39	Evaluate expression	(38+76)- (41+79)- 76%38	-6	-6	Pass
test40	Evaluate expression	(39+78)- (42+81)- 78%39	-6	-6	Pass
test41	Evaluate expression	(40+80)- (43+83)- 80%40	-6	-6	Pass
test42	Evaluate expression	(41+82)- (44+85)- 82%41	-6	-6	Pass
test43	Evaluate expression	(42+84)- (45+87)- 84%42	-6	-6	Pass

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test44	Evaluate expression	(43+86)- (46+89)- 86%43	-6	-6	Pass
test45	Evaluate expression	(44+88)- (47+91)- 88%44	-6	-6	Pass
test46	Evaluate expression	(45+90)- (48+93)- 90%45	-6	-6	Pass
test47	Evaluate expression	(46+92)- (49+95)- 92%46	-6	-6	Pass
test48	Evaluate expression	(47+94)- (50+97)- 94%47	-6	-6	Pass
test49	Evaluate expression	(48+96)- (51+99)- 96%48	-6	-6	Pass
test50	Evaluate expression	(49+98)- (52+101)- 98%49	-6	-6	Pass
test51	Evaluate expression	(50+100)- (53+103)- 100%50	-6	-6	Pass
test52	Evaluate expression	(51+102)- (54+105)- 102%51	-6	-6	Pass
test53	Evaluate expression	(52+104)- (55+107)- 104%52	-6	-6	Pass
test54	Evaluate expression	(53+106)- (56+109)- 106%53	-6	-6	Pass
test55	Evaluate expression	(54+108)- (57+111)- 108%54	-6	-6	Pass
test56	Evaluate expression	(55+110)- (58+113)- 110%55	-6	-6	Pass
test57	Evaluate expression	(56+112)- (59+115)- 112%56	-6	-6	Pass
test58	Evaluate expression	(57+114)- (60+117)- 114%57	-6	-6	Pass

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test59	Evaluate expression	(58+116)- (61+119)- 116%58	-6	-6	Pass
test60	Evaluate expression	(59+118)- (62+121)- 118%59	-6	-6	Pass
test61	Evaluate expression	(60+120)- (63+123)- 120%60	-6	-6	Pass
test62	Evaluate expression	(61+122)- (64+125)- 122%61	-6	-6	Pass
test63	Evaluate expression	(62+124)- (65+127)- 124%62	-6	-6	Pass
test64	Evaluate expression	(63+126)- (66+129)- 126%63	-6	-6	Pass
test65	Evaluate expression	(64+128)- (67+131)- 128%64	-6	-6	Pass
test66	Evaluate expression	(65+130)- (68+133)- 130%65	-6	-6	Pass
test67	Evaluate expression	(66+132)- (69+135)- 132%66	-6	-6	Pass
test68	Evaluate expression	(67+134)- (70+137)- 134%67	-6	-6	Pass
test69	Evaluate expression	(68+136)- (71+139)- 136%68	-6	-6	Pass
test70	Evaluate expression	(69+138)- (72+141)- 138%69	-6	-6	Pass
test71	Evaluate expression	(70+140)- (73+143)- 140%70	-6	-6	Pass
test72	Evaluate expression	(71+142)- (74+145)- 142%71	-6	-6	Pass
test73	Evaluate expression	(72+144)- (75+147)- 144%72	-6	-6	Pass



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test74	Evaluate expression	(73+146)- (76+149)- 146%73	-6	-6	Pass
test75	Evaluate expression	(74+148)- (77+151)- 148%74	-6	-6	Pass
test76	Evaluate expression	(75+150)- (78+153)- 150%75	-6	-6	Pass
test77	Evaluate expression	(76+152)- (79+155)- 152%76	-6	-6	Pass
test78	Evaluate expression	(77+154)- (80+157)- 154%77	-6	-6	Pass
test79	Evaluate expression	(78+156)- (81+159)- 156%78	-6	-6	Pass
test80	Evaluate expression	(79+158)- (82+161)- 158%79	-6	-6	Pass
test81	Evaluate expression	(80+160)- (83+163)- 160%80	-6	-6	Pass
test82	Evaluate expression	(81+162)- (84+165)- 162%81	-6	-6	Pass
test83	Evaluate expression	(82+164)- (85+167)- 164%82	-6	-6	Pass
test84	Evaluate expression	(83+166)- (86+169)- 166%83	-6	-6	Pass
test85	Evaluate expression	(84+168)- (87+171)- 168%84	-6	-6	Pass
test86	Evaluate expression	(85+170)- (88+173)- 170%85	-6	-6	Pass
test87	Evaluate expression	(86+172)- (89+175)- 172%86	-6	-6	Pass
test88	Evaluate expression	(87+174)- (90+177)- 174%87	-6	-6	Pass

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test89	Evaluate expression	(88+176)-(91+179)-176%88	-6	-6	Pass
test90	Evaluate expression	(89+178)-(92+181)-178%89	-6	-6	Pass
test91	Evaluate expression	(90+180)-(93+183)-180%90	-6	-6	Pass
test92	Evaluate expression	(91+182)-(94+185)-182%91	-6	-6	Pass
test93	Evaluate expression	(92+184)-(95+187)-184%92	-6	-6	Pass
test94	Evaluate expression	(93+186)-(96+189)-186%93	-6	-6	Pass
test95	Evaluate expression	(94+188)-(97+191)-188%94	-6	-6	Pass
test96	Evaluate expression	(95+190)-(98+193)-190%95	-6	-6	Pass
test97	Evaluate expression	(96+192)-(99+195)-192%96	-6	-6	Pass
test98	Evaluate expression	(97+194)-(100+197)-194%97	-6	-6	Pass
test99	Evaluate expression	(98+196)-(101+199)-196%98	-6	-6	Pass
test100	Evaluate expression	(99+198)-(102+201)-198%99	-6	-6	Pass
test101	Evaluate expression	(100+200)-(103+203)-200%100	-6	-6	Pass
test102	Evaluate expression	40 + 12	52	53	Pass
test103	Evaluate expression	40///3	[Error]	[Error]	Pass
<b>Test Case ID</b>	<b>Test Case Description</b>	<b>Test Data</b>	<b>Expected Results</b>	<b>Actual Results</b>	<b>Pass/Fail</b>

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secondcase test1	Evaluate expression	$25+15*2$	55	55	Pass
secondcase test2	Evaluate expression	$10/2+8$	13	13	Pass
secondcase test3	Evaluate expression	$6*4-5/2$	21.5	21.5	Pass
secondcase test4	Evaluate expression	$20\%3+7*2$	16	16	Pass
secondcase test5	Evaluate expression	$15+9/3\%2$	16	16	Pass
secondcase test6	Evaluate expression	$4*5+12\%3$	20	20	Pass
secondcase test7	Evaluate expression	$8+6\%3*4$	8	8	Pass
secondcase test8	Evaluate expression	$9*7/3-4$	17	17	Pass
secondcase test9	Evaluate expression	$11\%4-8/2$	-1	-1	Pass
secondcase test10	Evaluate expression	$13/3\%2*6$	2	2	Pass
secondcase test11	Evaluate expression	$17*3\%5-2$	-1	-1	Pass
secondcase test12	Evaluate expression	$12/4+9*2$	21	21	Pass
secondcase test13	Evaluate expression	$14\%3-5*2$	-8	-8	Pass
secondcase test14	Evaluate expression	$8/2+7*3$	25	25	Pass
secondcase test15	Evaluate expression	$11\%4-6/2$	0	0	Pass
secondcase test16	Evaluate expression	$20*3\%4-7$	-7	-7	Pass
secondcase test17	Evaluate expression	$15/5+8\%2$	3	3	Pass
secondcase test18	Evaluate expression	$14*2\%5-3$	0	0	Pass
secondcase test19	Evaluate expression	$9/3+6*2$	15	15	Pass
secondcase test20	Evaluate expression	$18\%4-7/2$	-1.5	-1.5	Pass
secondcase test21	Evaluate expression	$25+15\%3*2$	28	28	Pass
secondcase test22	Evaluate expression	$10*2\%3+8$	10	10	Pass

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secondcase test23	Evaluate expression	$6*4\%2-5/2$	-2.5	-2.5	Pass
secondcase test24	Evaluate expression	$20\%3*2+7$	9	9	Pass
secondcase test25	Evaluate expression	$15\%3+9/2*2$	2.25	2.25	Pass
secondcase test26	Evaluate expression	$4*5\%2+12$	12	12	Pass
secondcase test27	Evaluate expression	$8+6/3\%4*4$	10	10	Pass
secondcase test28	Evaluate expression	$9*7\%3-4/2$	-2	-2	Pass
secondcase test29	Evaluate expression	$11\%4+8/2-1$	6	6	Pass
secondcase test30	Evaluate expression	$13/3\%2*6+1$	5.33	5.33	Pass
secondcase test31	Evaluate expression	$17*3\%5-2+3$	2	2	Pass
secondcase test32	Evaluate expression	$12/4+9*2+2$	23	23	Pass
secondcase test33	Evaluate expression	$14\%3-5*2+4$	-4	-4	Pass
secondcase test34	Evaluate expression	$8/2+7*3+1$	26	26	Pass
secondcase test35	Evaluate expression	$11\%4-6/2+2$	2	2	Pass
secondcase test36	Evaluate expression	$20*3\%4-7+1$	-6	-6	Pass
secondcase test37	Evaluate expression	$15/5+8\%2+3$	6	6	Pass
secondcase test38	Evaluate expression	$14*2\%5-3+4$	4	4	Pass
secondcase test39	Evaluate expression	$9/3+6*2+1$	16	16	Pass
secondcase test40	Evaluate expression	$18\%4-7/2+2$	0.5	0.5	Pass
secondcase test41	Evaluate expression	$25+15\%3*2+3$	31	31	Pass
secondcase test42	Evaluate expression	$10*2\%3+8+1$	11	11	Pass
secondcase	Evaluate	$6*4\%2-$	-0.5	-0.5	Pass

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test43	expression	$5/2+2$			
secondcase test44	Evaluate expression	$20\%3*2+7+3$	12	12	Pass
secondcase test45	Evaluate expression	$15\%3+9/2*2+1$	3.25	3.25	Pass
secondcase test46	Evaluate expression	$4*5\%2+12+2$	14	14	Pass
secondcase test47	Evaluate expression	$8+6/3\%4*4+1$	11	11	Pass
secondcase test48	Evaluate expression	$9*7\%3-4/2+3$	1	1	Pass
secondcase test49	Evaluate expression	$11\%4+8/2-1+2$	8	8	Pass
secondcase test50	Evaluate expression	$13/3\%2*6+1+3$	8.33	8.33	Pass
secondcase test51	Evaluate expression	$17*3\%5-2+3+4$	6	6	Pass
secondcase test52	Evaluate expression	$12/4+9*2+2+1$	24	24	Pass
secondcase test53	Evaluate expression	$14\%3-5*2+4+2$	-2	-2	Pass
secondcase test54	Evaluate expression	$8/2+7*3+1+3$	29	29	Pass
secondcase test55	Evaluate expression	$11\%4-6/2+2+4$	6	6	Pass
secondcase test56	Evaluate expression	$20*3\%4-7+1+1$	-5	-5	Pass
secondcase test57	Evaluate expression	$15/5+8\%2+3+2$	8	8	Pass
secondcase test58	Evaluate expression	$14*2\%5-3+4+1$	5	5	Pass
secondcase test59	Evaluate expression	$9/3+6*2+1+2$	18	18	Pass
secondcase test60	Evaluate expression	$18\%4-7/2+2+3$	3.5	3.5	Pass

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secondcase test61	Evaluate expression	$25+15\%3*2+3+1$	32	32	Pass
secondcase test62	Evaluate expression	$10*2\%3+8+1+2$	13	13	Pass
secondcase test63	Evaluate expression	$6*4\%2-5/2+2+3$	2.5	2.5	Pass
secondcase test64	Evaluate expression	$20\%3*2+7+3+4$	16	16	Pass
secondcase test65	Evaluate expression	$15\%3+9/2*2+1+1$	4.25	4.25	Pass
secondcase test66	Evaluate expression	$4*5\%2+12+2+2$	16	16	Pass
secondcase test67	Evaluate expression	$8+6/3\%4*4+1+3$	14	14	Pass
secondcase test68	Evaluate expression	$9*7\%3-4/2+3+1$	2	2	Pass
secondcase test69	Evaluate expression	$11\%4+8/2-1+2+2$	10	10	Pass
secondcase test70	Evaluate expression	$13/3\%2*6+1+3+3$	11.33	11.33	Pass
secondcase test71	Evaluate expression	$17*3\%5-2+3+4+1$	7	7	Pass
secondcase test72	Evaluate expression	$12/4+9*2+2+1+2$	26	26	Pass
secondcase test73	Evaluate expression	$14\%3-5*2+4+2+3$	1	1	Pass
secondcase test74	Evaluate expression	$8/2+7*3+1+3+1$	30	30	Pass
secondcase test75	Evaluate expression	$11\%4-6/2+2+4+2$	8	8	Pass
secondcase test76	Evaluate expression	$20*3\%4-7+1+1+3$	-2	-2	Pass
secondcase test77	Evaluate expression	$15/5+8\%2+3+2+4$	12	12	Pass

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secondcase test78	Evaluate expression	$14 \div 2 \times 5 - 3 + 4 + 1 + 1$	6	6	Pass
secondcase test79	Evaluate expression	$9 \div 3 + 6 \times 2 + 1 + 2 + 2$	20	20	Pass
secondcase test80	Evaluate expression	$18 \div 4 - 7 \div 2 + 2 + 3 + 3$	6.5	6.5	Pass
secondcase test81	Evaluate expression	$25 + 15 \div 3 \times 2 + 3 + 1 + 2$	33	33	Pass
secondcase test82	Evaluate expression	$10 \times 2 \div 3 + 8 + 1 + 2 + 3$	15	15	Pass
secondcase test83	Evaluate expression	$6 \times 4 \div 2 - 5 \div 2 + 2 + 3 + 1$	5.5	5.5	Pass
secondcase test84	Evaluate expression	$20 \div 3 \times 2 + 7 + 3 + 4 + 2$	17	17	Pass
secondcase test85	Evaluate expression	$15 \div 3 + 9 \div 2 \times 2 + 1 + 1 + 3$	6.25	6.25	Pass
secondcase test86	Evaluate expression	$4 \times 5 \div 2 + 12 + 2 + 2 + 4$	19	19	Pass
secondcase test87	Evaluate expression	$8 + 6 \div 3 \times 4 \times 4 + 1 + 3 + 1$	15	15	Pass
secondcase test88	Evaluate expression	$9 \times 7 \div 3 - 4 \div 2 + 3 + 1 + 2$	4	4	Pass
secondcase test89	Evaluate expression	$11 \div 4 + 8 \div 2 - 1 + 2 + 2 + 3$	13	13	Pass
secondcase test90	Evaluate expression	$13 \div 3 \times 2 \times 6 + 1 + 3 + 3 + 1$	15.33	15.33	Pass
secondcase test91	Evaluate expression	$17 \times 3 \div 5 - 2 + 3 + 4 + 1 + 2$	8	8	Pass
secondcase test92	Evaluate expression	$12 \div 4 + 9 \times 2 + 2 + 1 + 2 + 3$	28	28	Pass
secondcase test93	Evaluate expression	$14 \div 3 - 5 \times 2 + 4 + 2 + 3 + 1$	4	4	Pass
secondcase test94	Evaluate expression	$8 \div 2 + 7 \times 3 + 1 + 3 + 1 + 2$	34	34	Pass

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secondcase test95	Evaluate expression	$11\%4 - 6/2 + 2 + 4 + 2 + 3$	9	9	Pass
secondcase test96	Evaluate expression	$20 * 3\%4 - 7 + 1 + 1 + 3 + 2$	0	0	Pass
secondcase test97	Evaluate expression	$15/5 + 8\%2 + 3 + 2 + 4 + 1$	13	13	Pass
secondcase test98	Evaluate expression	$14 * 2\%5 - 3 + 4 + 1 + 1 + 2$	8	8	Pass
secondcase test99	Evaluate expression	$9/3 + 6 * 2 + 1 + 2 + 2 + 3$	23	23	Pass
secondcase test100	Evaluate expression	$18\%4 - 7/2 + 2 + 3 + 3 + 1$	10.5	10.5	Pass
Hard_test_c ase1	Evaluate Expression	$((5 * 2) - ((3/1) + ((4\%3))))$	6	6	Pass
Hard_test_c ase2	Evaluate Expression	$((2^{(1+1)}) + ((3 - 1)^2)) / ((4/2) \%3)$	4	4	Pass
Hard_test_c ase3	Evaluate Expression	$(((((5 - 3))) * (((2 + 1)) + ((2 * 3))))$	12	12	Pass
Hard_test_c ase4	Evaluate Expression	$((9 + 6)) / ((3 * 1) / (((2 + 2))) - 1)$	-60	-60	Pass
Hard_test_c ase5	Evaluate Expression	$- (+2) * (+3) - (-4) / (-5)$	-6.8	-6.8	Pass

## 2. Test case identifier

Each test case can be identified by its name, which can be found in the first column of the table in section 1.

## 3. Test item

Each test includes multiple operations and can be viewed in the test data column. Each test case is classified as “Evaluate Expression” as the test case description.

## 4. Input specifications

Refer to column 3 of the table in section 1 to find input specifications for each test case.



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## 5. Output specifications

Column four is the output from each test case and the features can be viewed in column three as to which operator was used.

## 6. Environmental needs

### 6.1.1 Hardware Requirements

There aren't any specific hardware requirements besides the base requirement of running an operating system such as Mac, Linux, or Windows.

### 6.1.2 Software Requirements

A C++ compiler is required to run each test case. g++13 is recommended to run this program. We have provided an executable for Windows, Mac, and Linux.

### 6.1.3 Other

## 7. Special procedural requirements

There are no special procedural requirements. The software should work as expected if the user follows the user manual.

## 8. Intercase dependencies

There are no intercase dependencies.