

Python operators: the cheat sheet

Arithmetic

Op	Name	Example	Result	Note
+	add	7 + 2	9	also joins strings and lists
-	subtract	7 - 2	5	
*	multiply	7 * 2	14	also repeats: 'ab' * 3
/	true division	7 / 2	3.5	always a float: 6 / 3 is 2.0
//	floor division	7 // 2	3	rounds down: -7 // 2 is -4
%	modulo	7 % 2	1	n % 2 == 0 tests even
**	power	2 ** 10	1024	9 ** 0.5 is 3.0

Comparison (give True or False; they chain: 1 < x < 10)

==	equal	5 == 5.0 True
!=	not equal	5 != 6 True
< >	less, greater	3 < 5 True
<= >=	or equal	5 <= 5 True

Logical: and, or, not

a	b	a and b	a or b	not a
True	True	True	True	False
True	False	False	True	False
False	True	False	True	True
False	False	False	False	True

Short-circuit: left to right, stop when the answer is known: x != 0 and 10 / x > 1 never divides by zero. They return the deciding value: 0 or 5 is 5; " or 'default' is 'default'. False-y values: 0, 0.0, "", [], None, False.

Assignment, membership, identity

x = 5	assign (not compare)	x += 3	x = x + 3
also -= *= /= //= %= **=		a, b = b, a	swap
3 in [1, 2, 3]	True	'th' in 'python'	True
a is b	same object	x is None	the test for None; use == for values

Precedence, highest first

1	**	2 ** 3 ** 2 = 512 (groups from the right)
2	unary -	-2 ** 2 = -4
3	* // %	7 + 6 // 2 = 10
4	+ -	
5	comparisons, in, is	1 + 1 == 2 is True
6	not	not 1 == 2 is True
7	and	
8	or	True or False and False is True

The five mistakes, and twelve questions

Mistake	Fix
= for ==	= becomes, == equals; if x = 5 is a syntax error
x == 1 or 2 (always True)	x == 1 or x == 2, or x in (1, 2)
is for ==	== for values; is only for None
/ when // was meant	length // 2 for an index
not a and b read as not (a and b)	It is (not a) and b; bracket it

Twelve questions: write the result

- 17 // 5 and 17 % 5
- 2 ** 3 ** 2
- 3 ** 2
- 7 / 2 == 3.5
- 10 % 3 == 1 and 10 // 3 == 3
- not True or True
- 5 > 3 > 1
- 'a' in 'banana' and 'x' not in 'banana'
- 0 or 'empty'
- x = 4; x += 3; x *= 2; x
- (3 > 2) + (5 == 5)
- True or 1 / 0

Answers

1) 3 and 2 2) 512 3) -9 4) True 5) True 6) True 7) True 8) True 9) 'empty' 10) 14 11) 2 12) True, no error (short-circuit)

Write three of your own, with the answer

From

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