21 Nov '24

Operator precedence (what comes first?): When you have an expression with multiple numbers (or variable(s)) and multiple operators, the order in which you perform these operations is based on

'BODMAS' = 'PEMDAS'

B → Brackets
O → Order (power)
D / *
M * /
A + -
S + -
P → Parentheses
E → Exponential (power)

Order:
(1) Brackets — 1st ( ) parentheses → 2nd [ ] square brackets → 3rd { } curly braces
(2) Powers
(3) D & M have same precedence — so you do from left to right
(4) A & S have same precedence - so you do from left to right

(Ex-1) $6 / 2 + 2 \times 4$

$= 3 + 8$

$= 11$

(2) $6 / 2 \times 3 - 15 / 3 / 5 + 4 \times 3 / 2$

(1,x) $= 3 \times 3 - 5 / 5 + 12 / 2$

(1,x) $= 9 - 1 + 6$

(+,-) $= 8 + 6$

(+,-) $= 14$

(3) $10 - 4^2 / (2+6)$

(B) $= 10 - 4^2 / 8$

(0) $= 10 - 16 / 8$

(*,1) $= 10 - 2$

(+,-) $= 8$

(Ex.4) $2 + \{3 \times [4 + (5-2)]\}$

( ) $= 2 + \{3 \times [4+3]\}$

[ ] $= 2 + \{3 \times 7\}$

$= 2 + 21$

$= 23$

(Ex.5) $2 + (3 \times (4 + (5-2)))$ → python style

$= 2 + (3 \times (4+3))$

$= 2 + (3 \times 7)$

$= 2 + 21$

$= 23$

(Ex. 6) $\{2 + [(7-3) \times 2]^2 \div 8\} - 1$

$= \{2 + [4 \times 2]^2 \div 8\} - 1$

$= \{2 + 8^2 \div 8\} - 1$

$= \{2 + 64/8\} - 1$

$= \{2 + 8\} - 1$

$= 10 - 1$

$= 9$

(find the answer for)

HW: Evaluate these expressions using BODMAS/PEMDAS.

Use calculator for powers and decimal divisions.

(1) $15-6/2+3\times4$

(2) $(8+2)\times5-4^2$

(3) $7+12/4-2\times3$

(4) $25^{0.5}+3\times(10-5)$

(5) $18-2\times(4+5)\div3$

(6) $\{10+[(7-3)\times2]^2\div4\}-1$

(7) $5^2-10/2+(9\times4)^{0.5}$

(8) $(16/4)\times(3+2\times(5-2))$

(9) $(36+64)^{0.5}-2\times(8-3^2)$

(10) $15+\{5\times[12\div(3+1)]-2\}$

(11) $4^5\div2^5+3\times(7-2^2)$

(12) $\{5+[(9-3)^3\div8]\times2\}-11$

Do these in python also