ORDER OF OPERATIONS

FACT 1: Higher order operations are "grouping" of lower operations.

Order 0: **COUNTING**

Counting is the fundamental operation.

Order 1: **ADDITION**

Addition is *counting together.*

Order 1A: **SUBTRACTION**

Subtraction is *opposite of addition.* It is of the same order as addition, but subtracting before adding makes computation easier.

Order 2: **MULTIPLICATION**

Multiplication is *repeated addition.*

Order 2A: **DIVISION**

Division is *opposite of multiplication.* It is of the same order as multiplication, but dividing before multiplying makes computation easier.

Order 3: **PARENTHESES**

Parentheses are used to group operations to be executed first.

FACT 2: In mixed operations, higher order operations are carried out first.

7 + 2 x 3 = 6, because it is actually 7 + $\underline{2 + 2 + 2}$ (multiplication is repeated addition)

(7 + 2) x 3 = 27, because (7 + 2) is treated as a single number 9 due to parenthesis

1. Solve the following using correct order of operation.

(a) 8 + 2 x 4	(d) (3 + 8) x 5	(g) 4 x 3 + 2 x 5
(b) 8 x 2 + 4	(e) 6 + 5 x 3	(h) 4 + 3 x 2 + 5
(c) 3 + 8 x 5	(f) 6 x (5 + 3)	(i) 4 + 3 x (2 + 5)

Check your answers:

(a) 16 (b) 20 (c) 43 (d) 55 (e) 21 (f) 48 (g) 22 (h) 15 (i) 25

End of Lesson