

$$25 \oplus 37 \oplus 75 = 25 \oplus 75 \oplus 37 = 137$$

137
100 + 37

In addition, order does not matter

Commutative Property
 $a + b = b + a$

Commutate to
work/school



$$25 \otimes 13 \otimes 4 = 25 \otimes 4 \otimes 13$$

1300
100 * 13 = 1300

In multiplication, order does not matter.
 $a \otimes b = b \otimes a$

$$13 + (87 + 26) = (13 + 87) + 26 = \boxed{126}$$

(126)

Note: order remains same -
only parentheses change.

Associative Property: change parentheses
when adding or multiply only.

$$2 * (50 * 16) = \underbrace{(2 * 50)}_{100} * 16 = 1600$$

$$a + (b + c) = (a + b) + c$$

Add

$$a * (b * c) = (a * b) * c$$

Multiplication

Identity Property

$$8 + 0 = 8$$

mirror

$$a + 0 = a$$

mirror

$$8 * 1 = 8$$

$$a * 1 = a$$

Any number add 0 = itself
multiply 1 = itself

Inverse Property

$$8 + (-8) = 0$$

Add its opposite

$$-3 + 3 = 0$$

$$\frac{8}{1} * \frac{1}{8} = 1$$

inverse (flip)

Multiply by its inverse

$$\frac{3}{4} * \frac{4}{3} = 1$$

$$X + 3 = 8$$

inverse property $X + \underbrace{3 - 3} = 8 - 3$ Add its opposite

$$X + 0 = 5$$

identity property $\left\{ \begin{array}{l} X + 0 = 5 \\ \nearrow \\ X = 5 \end{array} \right.$

1.) $14 + (m+n) = (14+m) + n$
Associative

2.) $p + 0 = p$ *identity*

3.) $19 * 11 = 11 * 19$ *commutative*

4.) $k * \frac{1}{k} = 1$ *inverse*

5.) $b(xy) = (bx)y$ *associative*

6.) $n = 1 * n$ *identity*

- Commutative (C)
- Associative (A)
- Identity (ID)
- Inverse (IN)

Distributive Property

$$4(x+5) = (x+5) + (x+5) + (x+5) + (x+5)$$

$$x+5 + x+5 + x+5 + x+5$$

$$\boxed{4x + 20}$$

$$4(x+5) = 4 * x + 4 * 5$$

$$\boxed{4x + 20}$$

$$8(s - 2k + m) = \boxed{8s - 16k + 8m}$$

$$5(-6 + t) = \boxed{-6s + st}$$

$$-(3a + 4b) =$$

$$-1(3a + 4b) = \boxed{-3a - 4b}$$

$$(3a - 8)5 = \boxed{15a - 40}$$

$$1.) 6(3x-8)$$

$$\boxed{18x-48}$$

$$2.) -2(4p+12)$$

$$\boxed{-8p-24}$$

$$\boxed{12a} + \boxed{4} + \boxed{6a} + \boxed{8}$$

$$12a + 6a$$

$$4 + 8$$

$$18a$$

$$12$$

$$\boxed{18a+12}$$

"simplify"
"combine like
terms"

Math is racist

$$5(2y+1) - 7y$$

$$10y + 5 - 7y = 10y - 7y + 5$$

$$\boxed{3y + 5}$$

$$1.) \quad 3(a+5) + 9$$

$$3a + 15 + 9 = \boxed{3a + 24}$$

$$2.) \quad 8c + 5(c-3)$$

$$8c + 5c - 15$$

$$\boxed{13c - 15}$$

$$8s + 5s + 15t$$

$$\boxed{13s + 15t}$$

$$3.) \quad -3(1-2n) + 2(n+4)$$

$$\boxed{-3} + 6n + 2n + \boxed{8}$$

$$\boxed{8n + 5}$$

$$-3 + 8 = 8 + (-3)$$

$\textcircled{5}$