

# Number Properties

Commutate: home to school  
school to home

Commutative property of addition: **C.P.A**

$$a + b = b + a$$

"change the "  
order"

$$3 + 4 = 4 + 3$$

$$7 = 7$$

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

$$-1 = -1$$

Commutative property of multiplication: **C.P.M**

$$ab = ba$$

$$1 \cdot 2 = 2 \cdot 1$$

$$2 = 2$$

$$-5 \cdot 4 = 4 \cdot (-5)$$

$$-20 = -20$$

Associative Property of addition: **A.P.A**

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

$$(1 + 2) + 3 = 1 + (2 + 3)$$

"change  
the groups/  
( )"

Associative Property of multiplication: **A.P.M**

$$(a \cdot b) \cdot c = a \cdot (b \cdot c)$$

$$(1 \cdot 2) \cdot 3 = 1 \cdot (2 \cdot 3)$$

Identity Property of Addition:  
"reflection" I.P.A

$$a + 0 = a$$

$$5 + 0 = 5$$

$$-3 + 0 = -3$$

Identity Property of multiplication:  
I.P.M

$$a \cdot 1 = a$$

$$5 \cdot 1 = 5$$

$$6 \cdot 1 = 6$$

ex.)

①  $(a+b)+c = (a+b)+c$  none

②  $a+0 = a$  I.P.A

③  $5+4 = 4+5$  C.P.A

④  $(1+2)+3 = 1+(2+3)$  A.P.A

⑤  $-6 \times 1 = -6$  I.P.M

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