

Properties of Real Numbers

The following properties hold true for all real numbers a , b , and c

Commutative Property of Addition	$a + b = b + a$
Commutative Property of Multiplication	$ab = ba$
Associative Property of Addition	$a + (b + c) = (a + b) + c$
Associative Property of Multiplication	$(ab)c = a(bc)$
Distributive Property	$a(b + c) = ab + ac$
Additive Identity Property	$a + 0 = 0 + a = a$
Multiplicative Identity Property	$a \times 1 = 1 \times a = a$
Additive Inverse Property	$a + (-a) = -a + a = 0$
Multiplicative Inverse Property	$a \times \frac{1}{a} = \frac{1}{a} \times a = 1$
Multiplication Property of Zero	$a \times 0 = 0 \times a = 0$
Zero Product Property	If $ab = 0$ then $a = 0$ or $b = 0$
Reflexive Property	$a = a$
Symmetric Property	If $a = b$ then $b = a$
Transitive Property	If $a = b$ and $b = c$ then $a = c$
Substitution Property	If $a = b$ then a may be substituted for b in any equation or expression.