Algebraic Properties

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| **Distributive Property** | 3(5 + 2) = 15 + 6  x × (4 + 6) = 4 × x + 6 × x |
| **Commutative Property** | 3 + 7 = 7 + 3  (x + 6) + 5 = (6 + x) + 5 |
| **Commutative Property of Multiplication** | 2 × 10 = 10 × 2  (5a) × b = b × (5a) |
| **Associative Property of Addition** | 5 + (6 + 7) = (5 + 6) + 7  (x + y) + 3 = x + (y + 3) |
| **Associative Property of Multiplication** | 6 × (3 × 2) = (6 × 3) × 2  (6x) × y = 6 × (xy) |
| **Additive Identity** | 6 + 0 = 6  x + 0 = x |
| **Additive Inverse** | 5 + (-5) = 0  b + (-b) = 0 |
| **Multiplicative Identity** | 5 × 1 = 5  x × 1 = × |
| **Multiplicative Inverse** | 8 × (1/8) = 1  x × (1/x) = 1 |
| **Multiplicative Property of Zero (Numbers)** | 9 × 0 = 0  a × 0 = 0 |
| **Transitive Property** | If x = b & b = 3, then x = 3  If a = b + 4 & b + 4 = c, then a = c |

1. Write down what’s given translate into Algebra.
2. When more than 1 expression is given, we find how to substitute one expression into another with the goal of having like terms.