

ALGEBRA: Multiplication of Algebraic Expressions (Sample Problems & Solutions) - Part 005

1. Find the product of the following algebraic expressions:
 $(x + 1)$ and $(x^2 - 1)$.

Solution:

Multiplying the two expressions, we have,

$$(x + 1)(x^2 - 1)$$

Distribute the second term into the first term or vice versa, we have,

$$(x + 1)(x^2 - 1) \\ x(x^2 - 1) + 1(x^2 - 1)$$

Simplifying further thru distributive property, we have,

$$x(x^2 - 1) + 1(x^2 - 1) \\ x^3 - x + 1(x^2 - 1)$$

$$x^3 - x + 1(x^2 - 1) \\ x^3 - x + x^2 - 1 \\ x^3 + x^2 - x - 1$$

Therefore, the product of the two expressions is $x^3 + x^2 - x - 1$.

2. Simplify the following: $x^2(x + 1)(x - 1)$.

Solution:

$$x^2(x + 1)(x - 1)$$