

## Algebra

1.  $(a + b)^2 = a^2 + b^2 + 2ab$
2.  $(a - b)^2 = a^2 + b^2 - 2ab$
3.  $a^2 - b^2 = (a + b)(a - b)$
4.  $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$
5.  $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
6.  $(a - b)^3 = a^3 - b^3 - 3ab(a - b)$
7.  $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$
8.  $a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$
9.  $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$
10. If  $a + b + c = 0$ , then  $a^3 + b^3 + c^3 - 3abc = 0$

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