Math Formulas

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Abstract

This document is written by a human so there can be mistakes here and there. If you find any mistake please let me know. It will be a great help. Thank you.

1 Square

1. $(a+b)^2 = a^2 + 2ab + b^2$
   $= (a-b)^2 + 4ab$
2. $(a-b)^2 = a^2 - 2ab + b^2$
   $= (a+b)^2 - 4ab$
3. $a^2 + b^2 = (a+b)^2 - 2ab$
   $= (a-b)^2 + 2ab$
   $= \frac{(a+b)^2+(a-b)^2}{2}$
4. $a^2 - b^2 = (a+b)(a-b)$
5. $4ab = (a+b)^2 - (a-b)^2$
6. $ab = (\frac{a+b}{2})^2 - (\frac{a-b}{2})$
7. $2a^2 + 2b^2 = (a+b)^2 + (a-b)^2$
8. $(x+a)(x+b) = x^2 + (a+b)x + ab$
9. $(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + 2ac + 2bc)$

2 Cube

10. $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$
$= a^3 + b^3 + 3ab(a+b)$

11. $(a-b)^3 = a^3 - 3a^2b + 2ab^2 - b^3$
$= a^3 - b^3 - 3ab(a-b)$

12. $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$
$= (a+b)^3 - 3ab(a+b)$

13. $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$
$= (a-b)^3 - 3ab(a+b)$