

Algebraic Formula Square and Cube

Square Formula

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

Cube Formula

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