

$$(a + b)^2 = a^2 + 2 a b + b^2$$

$$(a - b)^2 = a^2 - 2 a b + b^2$$

$$a^2 - b^2 = (a + b) (a - b)$$

$$(a + b)^3 = a^3 + 3 a^2 b + 3 a b^2 + b^3$$

$$(a - b)^3 = a^3 - 3 a^2 b + 3 a b^2 - b^3$$

$$(a + b)^4 = a^4 + 4 a^3 b + 6 a^2 b^2 + 4 a b^3 + b^4$$

$$(a - b)^4 = a^4 - 4 a^3 b + 6 a^2 b^2 - 4 a b^3 + b^4$$

$$(a + b)^5 = a^5 + 5 a^4 b + 10 a^3 b^2 + 10 a^2 b^3 + 5 a b^4 + b^5$$

$$(a - b)^5 = a^5 - 5 a^4 b + 10 a^3 b^2 - 10 a^2 b^3 + 5 a b^4 - b^5$$

$$a^3 - b^3 = (a - b) (a^2 + a b + b^2)$$

$$a^3 + b^3 = (a + b) (a^2 - a b + b^2)$$

$$a^4 - b^4 = (a - b) (a + b) (a^2 + b^2)$$

$$a^5 - b^5 = (a - b) (a^4 + a^3 b + a^2 b^2 + a b^3 + b^4)$$

$$a^5 + b^5 = (a + b) (a^4 - a^3 b + a^2 b^2 - a b^3 + b^4)$$

$$a^6 - b^6 = (a - b) (a + b) (a^2 + a b + b^2) (a^2 - a b + b^2)$$