

$$(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$$

1. $(a+b)^2 = a^2 + 2ab + b^2$
2. $(a+b)^2 = (a-b)^2 + 4ab$
3. $(a-b)^2 = a^2 - 2ab + b^2$
4. $(a-b)^2 = (a+b)^2 - 4ab$
5. $a^2 + b^2 = (a+b)^2 - 2ab$
6. $a^2 + b^2 = (a-b)^2 + 2ab$
7. $a^2 - b^2 = (a+b)(a-b)$
8. $2(a^2 + b^2) = (a+b)^2 + (a-b)^2$
9. $4ab = (a+b)^2 - (a-b)^2$
10. $ab = \{(a+b)/2\}^2 - \{(a-b)/2\}^2$
11. $(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$
12. $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$
13. $(a+b)^3 = a^3 + b^3 + 3ab(a+b)$
14. $(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$
15. $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$
16. $a^3 + b^3 = (a+b)^3 - 3ab(a+b)$
17. $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$
18. $a^3 - b^3 = (a-b)^3 + 3ab(a-b)$

sin 0° = 0

sin 30° = 1/2

sin 45° = 1/√2

sin 60° = √3/2

sin 90° = 1

cos is opposite of sin

cosec 0° = 0

cosec 30° = 1/√3

cosec 45° = 1

cosec 60° = √3

cosec 90° = ∞

cot is reciprocal of tan

sec 0° = 1

sec 30° = 2/√3

sec 45° = √2

sec 60° = 2

sec 90° = ∞

cosec is reciprocal of sec

2sin a cos b = sin(a+b) + sin(a-b)

2cos a sin b = sin(a+b) - sin(a-b)

2cos a cos b = cos(a+b) + cos(a-b).

2sin a sin b = -cos(a-b) + cos(a+b) 12. 4cos^3 a = 3cos a + cos 3a

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