BALABHADRA SKILL DEVELOPMENT ACADEMY
MATHS FORMULA - 3
ALGEBRA AND EXPONENTS AND POWERS

ALGEBRA

1. $(a+b)^2 = a^2 + b^2 + 2ab$
1(a) $(a+b)^3 = a^3 + b^3 + 3ab(a+b)$
2. $(a-b)^2 = a^2 + b^2 - 2ab$
2(a) $(a-b)^3 = a^3 - b^3 - 3ab(a-b)$
3. $a^2 - b^2 = (a+b)(a-b)$
4. $a^2 + b^2 = (a+b)^2 - 2ab$ or $(a-b)^2 + 2ab$
5. $a^3 + b^3 = (a+b)(a^2 - ab + b^2) = (a+b)^3 - 3ab(a+b)$
6. $a^3 - b^3 = (a-b)(a^2 + ab + b^2) = (a-b)^3 + 3ab((a-b)$
7. $2(a^2 + b^2) = (a+b)^2 + (a-b)^2$
8. $(a+b)^2 - (a-b)^2 = 4ab$
9. $a^4 - b^4 = (a+b)(a-b)[(a+b)^2 - 2ab]$
10. $(a-b)^2 = (a+b)^2 - 4ab$
11. $(a+b)^2 = (a-b)^2 + 4ab$
12. $a^4 + b^4 = [(a+b)^2 - 2ab]^2 - 2(ab)^2$
13. $(a+b+c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$
14. $(a+b-c)^2 = a^2 + b^2 + c^2 + 2ab - 2bc - 2ca$
15. $(a-b-c)^2 = a^2 + b^2 + c^2 - 2ab + 2bc - 2ca$
16. $a^3 + b^3 + c^3 - 3abc = (a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca)$
17. $a^4 + a^2b^2 + b^4 = (a^2 + ab + b^2)(a^2 - ab + b^2)$
18. $a^8 - b^8 = (a^4 + b^4)(a^2 + b^2)(a+b)(a-b)$
19. $(x+a)(x+b) = x^2 + x(a+b) + ab$

EXPONENTS AND POWERS

20. $a^m \times a^n = a^{m+n}$
21. $a^m / a^n = a^{m-n}$
22. $(a^m)^n = a^{mxn}$
23. $(ab)^x = a^x b^x$

24. $(a/b)^x = a^x/b^x$
25. $a^{1/x} = \sqrt[x]{a}$
26. $a^0=1$
27. $1/a^m = a^{-m}$
28. $(a/b)^{-m} = (b/a)^m$