Trigonometric Formula

1. $\cos 2A = \cos^2 A - \sin^2 A = 1 - 2\sin^2 A = 2\cos^2 A - 1$

2. $\sin 2A = 2\sin A \cos A$

3. $\cos(A + B) = \cos A \cos B - \sin A \sin B$

4. $\cos(A - B) = \cos A \cos B + \sin A \sin B$

5. $\sin(A + B) = \sin A \cos B + \cos A \sin B$

6. $\sin(A - B) = \sin A \cos B - \cos A \sin B$

7. $\cos A = 1 - \dfrac{A^2}{2!} + \dfrac{A^4}{4!} - \dfrac{A^6}{6!} + \cdots\cdots\cdots\cdots$

8. $\sin A = A - \dfrac{A^3}{3!} + \dfrac{A^5}{5!} - \dfrac{A^7}{7!} + \cdots\cdots\cdots\cdots$

9. $\tan A = A + \dfrac{A^3}{3} + \dfrac{A^5}{5} + \dfrac{A^7}{7} + \cdots\cdots\cdots\cdots$

10. $e^A = 1 + A + \dfrac{A^2}{2!} + \dfrac{A^3}{3!} + \dfrac{A^4}{4!} + \cdots\cdots\cdots$

11. $e^{-A} = 1 - A + \dfrac{A^2}{2!} - \dfrac{A^3}{3!} + \dfrac{A^4}{4!} - \cdots\cdots\cdots$

12. $(1 + A)^{-1} = 1 - A + A^2 - A^3 + \cdots\cdots\cdots\cdots$

13. $(1 - A)^{-1} = 1 + A + A^2 + A^3 + \cdots\cdots\cdots\cdots$

14. $(A + B)^n = A^n + {}^nC_1 A^{n-1} B + {}^nC_2 A^{n-2} B^2 + \cdots\cdots + B^n$

15. $\ln(1 + A) = A - \dfrac{A^2}{2} + \dfrac{A^3}{3} - \dfrac{A^4}{4} + \cdots\cdots\cdots$

16. $\ln(1 - A) = -A - \dfrac{A^2}{2} - \dfrac{A^3}{3} - \dfrac{A^4}{4} - \cdots\cdots\cdots$