

Formulas for Integrals

$$1. \int x^n dx = \frac{x^{n+1}}{n+1}, \quad n \neq -1$$

$$2. \int \cos(x) dx = \sin(x)$$

$$3. \int \sin(x) dx = -\cos(x)$$

$$4. \int \sec^2(x) dx = \tan(x)$$

$$5. \int \csc^2(x) dx = -\cot(x)$$

$$6. \int \sec(x) \tan(x) dx = \sec(x)$$

$$7. \int \csc(x) \cot(x) dx = -\csc(x)$$

$$8. \int e^x dx = e^x$$

$$9. \int \frac{dx}{x} = \ln(x)$$

$$10. \int a^x dx = \ln(a)a^x$$

$$11. \int \frac{1}{\sqrt{1-x^2}} dx = \sin^{-1}(x)$$

$$12. \int \frac{1}{1+x^2} dx = \tan^{-1}(x)$$

$$13. \int \frac{1}{|x|\sqrt{x^2-1}} dx = \sec^{-1}(x)$$

$$14. \sin^2(x) + \cos^2(x) = 1$$

$$15. \sin^2(x) = \frac{(1 - \cos(2x))}{2}$$

$$16. \cos^2(x) = \frac{(1 + \cos(2x))}{2}$$

$$17. \sin(x) \cos(x) = \frac{\sin(2x)}{2}$$

$$18. \sinh(x) = \frac{e^x - e^{-x}}{2}$$

$$19. \cosh(x) = \frac{e^x + e^{-x}}{2}$$

$$20. \int \sinh(x) dx = \cosh(x)$$

$$21. \int \cosh(x) dx = \sinh(x)$$

$$22. \int f'g = fg - \int fg'$$