

Basic Integration Formulas

$$1. \int u^n du = \frac{u^{n+1}}{n+1} + c, \quad n \neq -1$$

$$2. \int \frac{1}{u} du = \ln |u| + c$$

$$3. \int e^u du = e^u + c$$

$$4. \int \sin u du = -\cos u + c$$

$$5. \int \cos u du = \sin u + c$$

$$6. \int \tan u du = \ln |\sec u| + c$$

$$7. \int \sec u du = \ln |\sec u + \tan u| + c$$

$$8. \int \sec^2 u du = \tan u + c$$

$$9. \int \sec u \tan u du = \sec u + c$$

$$10. \int \cot u du = \ln |\sin u| + c$$

$$11. \int \csc u du = -\ln |\csc u + \cot u| + c$$

$$12. \int \csc^2 u du = -\cot u + c$$

$$13. \int \frac{du}{\sqrt{a^2 - u^2}} = \arcsin \frac{u}{a} + c$$

$$14. \int \frac{du}{u \sqrt{u^2 - a^2}} = \frac{1}{a} \operatorname{arcsec} \frac{|u|}{a} + c$$

$$15. \int \frac{du}{a^2 + u^2} = \frac{1}{a} \arctan \frac{u}{a} + c$$

$$16. \int u dv = uv - \int v du$$