

Monday, January 26, 2015

Recall the following Theorems:

$$1. \quad \int \sec u \, du = \ln|\sec u + \tan u| + C$$

$$2. \quad \int \csc u \, du = -\ln|\csc u + \cot u| + C$$

$$3. \quad \int \tan u \, du = -\ln|\cos u| + C$$

$$4. \quad \int \cot u \, du = \ln|\sin u| + C$$

$$5. \quad \frac{d}{dx} [\arcsin u] = \frac{u'}{\sqrt{1-u^2}}$$

$$6. \quad \frac{d}{dx} [\arccos u] = \frac{-u'}{\sqrt{1-u^2}}$$

$$7. \quad \frac{d}{dx} [\arctan u] = \frac{u'}{1+u^2}$$

$$8. \quad \frac{d}{dx} [\operatorname{arccot} u] = \frac{-u'}{1+u^2}$$

$$9. \quad \frac{d}{dx} [\operatorname{arcsec} u] = \frac{u'}{|u|\sqrt{u^2-1}}$$

$$10. \quad \frac{d}{dx} [\operatorname{arccsc} u] = \frac{-u'}{|u|\sqrt{u^2-1}}$$

$$11. \quad \int \frac{du}{\sqrt{a^2-u^2}} = \arcsin \frac{u}{a} + C$$

$$12. \quad \int \frac{du}{a^2+u^2} = \frac{1}{a} \arctan \frac{u}{a} + C$$

$$13. \quad \int \frac{du}{u\sqrt{u^2-a^2}} = \frac{1}{a} \operatorname{arcsec} \frac{|u|}{a} + C$$

1.
$$\int \frac{2}{(2t-1)^2 + 4} dt =$$

2.
$$\int \sec 3x \tan 3x dx =$$

3.
$$\int \frac{2}{(t-9)^2} dt =$$

4.
$$\int x\sqrt{4-2x^2} dx =$$

5.
$$\int \frac{2x}{x-4} dx =$$

6.
$$\int \left(\frac{1}{3x-1} - \frac{1}{3x+1} \right) dx =$$

7. $\int \frac{\sin x}{\sqrt{\cos x}} dx =$

8. $\int (\tan x)[\ln(\cos x)] dx =$

9. $\int \frac{1}{4+3x^2} dx =$

10. $\int \frac{1}{\sqrt{1-4x-x^2}} dx =$

11. $y' = \frac{1}{x\sqrt{4x^2-1}}$ Solve for y

12. $\int_0^4 \frac{1}{\sqrt{25-x^2}} dx =$