Universidad Tecnológica Fidel Velázquez
Cálculo Integral - Actividad 4 - Tarea

Resuelva cada una de las siguientes integrales indefinidas. Utilice sólo lápiz, goma y hojas de papel.

Nombre del(la) alumno(a): ____________________

$$\int \left(x^{3/2} - 2x^{2/3} + 5\sqrt{x} - 3\right) dx \tag{1}$$

$$\int \left(x^4 + 3x - 9\right) dx \tag{2}$$

$$\int \left(5t^3 - 10t^{-6} + 4\right) dt \tag{3}$$

$$\int \left(x^8 + x^{-8}\right) dx \tag{4}$$

$$\int \left(3\sqrt[3]{x^3} + \frac{7}{x^5} + \frac{1}{6\sqrt{x}}\right) dx \tag{5}$$

Formulario de integrales inmediatas.

$$\int (du + dv - dw) = \int du + \int dv - \int dw$$

$$\int a dv = a \int dv$$

$$\int dx = x + c$$

$$\int v^n dv = \frac{v^{n+1}}{n+1} + c$$

$$\int \frac{dv}{v} = \ln v + c$$

$$\int a^v dv = \frac{a^v}{\ln a} + c$$

$$\int e^v dv = e^v + c$$

$$\int \sin v dv = -\cos v + c$$

$$\int \cos v dv = \sin v + c$$

$$\int \sec^2 v dv = \tan v + c$$

$$\int \csc^2 v dv = -\cot v + c$$

$$\int \sec v \tan v dv = \sec v + c$$

$$\int \csc v \cot v dv = -\csc v + c$$

$$\int \tan v dv = -\ln \cos v + c = \ln \sec v + c$$

$$\int \cot v dv = \ln \sin v + c$$

$$\int \sec v dv = \ln(\sec v + \tan v) + c$$

$$\int \csc v dv = \ln(\csc v - \cot v) + c$$

$$\int \frac{dv}{v^2 + a^2} = \frac{1}{a} \arctan \frac{v}{a} + c$$

$$\int \frac{dv}{v^2 - a^2} = \frac{1}{2a} \ln \frac{v - a}{v + a} + c$$

$$\int \frac{dv}{a^2 - v^2} = \frac{1}{2a} \ln \frac{a + v}{a - v} + c$$

$$\int \frac{dv}{\sqrt{a^2 - v^2}} = \arcsin \frac{v}{a} + c$$

$$\int \frac{dv}{\sqrt{v^2 \pm a^2}} = \ln\left(v + \sqrt{v^2 \pm a^2}\right) + c$$

Integración por partes.

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

Formulario de identidades trigonométricas.

$$\tan\theta = \frac{\sin\theta}{\cos\theta}$$

$$\cot\theta = \frac{\cos\theta}{\sin\theta}$$

$$\sec\theta = \frac{1}{\cos\theta}$$

$$\csc\theta = \frac{1}{\sin\theta}$$

$$\sin^2\theta + \cos^2\theta = 1$$

$$\csc^2\theta - \cot^2\theta = 1$$

$$\sec^2\theta - \tan^2\theta = 1$$

$$\sin^2\theta = \frac{1}{2}\left(1 - \cos 2\theta\right)$$

$$\cos^2\theta = \frac{1}{2}\left(1 + \cos 2\theta\right)$$

$$\sin\theta\cos\theta = \frac{1}{2}\sin 2\theta$$

Formulario de derivadas.

$$\frac{\mathrm{d}c}{\mathrm{d}x} = 0$$

$$\frac{\mathrm{d}x}{\mathrm{d}x} = 1$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(u + v - w\right) = \frac{\mathrm{d}u}{\mathrm{d}x} + \frac{\mathrm{d}v}{\mathrm{d}x} - \frac{\mathrm{d}w}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(cv\right) = c\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(uv\right) = u\frac{\mathrm{d}v}{\mathrm{d}x} + v\frac{\mathrm{d}u}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(v^n\right) = nv^{n-1}\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\frac{u}{v}\right) = \frac{v\frac{\mathrm{d}u}{\mathrm{d}x} - u\frac{\mathrm{d}v}{\mathrm{d}x}}{v^2}$$

$$\frac{\mathrm{d}y}{\mathrm{d}x} = \frac{\mathrm{d}y}{\mathrm{d}v}\cdot\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}y}{\mathrm{d}x} = \frac{1}{\frac{\mathrm{d}x}{\mathrm{d}y}}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\ln v\right) = \frac{1}{v}\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\log v\right) = \frac{\log e}{v}\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(a^v\right) = a^v\ln a\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(e^v\right) = e^v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(u^v\right) = vu^{v-1}\frac{\mathrm{d}u}{\mathrm{d}x} + \ln u\cdot u^v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\sin v\right) = \cos v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\cos v\right) = -\sin v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\tan v\right) = \sec^2 v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\cot v\right) = -\csc^2 v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\sec v\right) = \sec v\tan v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\csc v\right) = -\csc v\cot v\frac{\mathrm{d}v}{\mathrm{d}x}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\arcsin v\right) = \frac{\frac{\mathrm{d}v}{\mathrm{d}x}}{\sqrt{1-v^2}}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\arccos v\right) = -\frac{\frac{\mathrm{d}v}{\mathrm{d}x}}{\sqrt{1-v^2}}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\arctan v\right) = \frac{\frac{\mathrm{d}v}{\mathrm{d}x}}{1+v^2}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\operatorname{arccot} v\right) = -\frac{\frac{\mathrm{d}v}{\mathrm{d}x}}{1+v^2}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\operatorname{arcsec} v\right) = \frac{\frac{\mathrm{d}v}{\mathrm{d}x}}{v\sqrt{v^2-1}}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(\operatorname{arccsc} v\right) = -\frac{\frac{\mathrm{d}v}{\mathrm{d}x}}{v\sqrt{v^2-1}}$$