FORMULÁRIO – M008

PRINCIPAIS DIRETIVAS DE DERIVAÇÃO E INTEGRAÇÃO:

$$\frac{d}{dx}[K]=0 \qquad \frac{d}{dx}[K\cdot f(x)]=K\cdot f'(x)$$

$$\frac{d}{dx}\left[f(x)^m\right]=m\cdot f(x)^{m-1}\cdot f'(x)$$

$$\frac{d}{dx}\left[a^{f(x)}\right]=a^{f(x)}\cdot \ln(a)\cdot f'(x)$$

$$\frac{d}{dx}\left[\log_a\left(f(x)\right)\right]=\frac{f'(x)}{\ln(a)\cdot f(x)}$$

$$\frac{d}{dx}\left[sen\left(f(x)\right)\right]=\cos\left(f(x)\right)\cdot f'(x)$$

$$\frac{d}{dx}\left[\cos\left(f(x)\right)\right]=-sen\left(f(x)\right)\cdot f'(x)$$

$$\frac{d}{dx}\left[tg\left(f(x)\right)\right]=\sec^2\left(f(x)\right)\cdot f'(x)$$

$$\frac{d}{dx}\left[\cot g\left(f(x)\right)\right]=-\cos\sec^2\left(f(x)\right)\cdot f'(x)$$

$$\frac{d}{dx}\left[f(x)\cdot g(x)\right]=f'(x)\cdot g(x)+f(x)\cdot g'(x)$$

$$\int K\cdot dx = Kx + C$$

$$\int f(x)^m\cdot f'(x)\cdot dx=\frac{f(x)^{m+1}}{m+1}+C$$

$$\int a^{f(x)}\cdot f'(x)\cdot dx=\frac{a^{f(x)}}{\ln(a)}+C$$

$$\int \frac{f'(x)}{f(x)}\cdot dx=\ln\left(f(x)\right)+C$$

$$\int sen\left(f(x)\right)\cdot f'(x)\cdot dx=-\cos\left(f(x)\right)+C$$

$$\int \cos\left(f(x)\right)\cdot f'(x)\cdot dx=sen\left(f(x)\right)+C$$

$$\int tg\left(f(x)\right)\cdot f'(x)\cdot dx=\ln\left[\sec\left(f(x)\right)\right]+C$$

$$\int \sec^2\left(f(x)\right)\cdot f'(x)\cdot dx=tg\left(f(x)\right)+C$$

$$\int \cos\sec^2\left(f(x)\right)\cdot f'(x)\cdot dx=-\cot g\left(f(x)\right)+C$$

$$\int \frac{f'(x)}{a^2+f(x)^2}\cdot dx=\frac{1}{a}arctg\left(\frac{f(x)}{a}\right)+C$$

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

FÓRMULAS DE PROBABILIDADE:

$$P(B\mid A)\equiv\frac{P(A\cap B)}{P(A)} \qquad P(B\mid A)=\frac{P(A\mid B)P(B)}{P(A)}$$

$$P[A\cup B]=P[A]+P[B]-P[A\cap B]$$

$$f_X(x)=\frac{dF_X(x)}{dx} \qquad F_X(x)=P[X\le x]$$

$P[A\cap B]=P[A]\cdot P[B]$ se A e B forem independentes.

$$P[a\le X\le b]=\sum_{x=a}^{b} f_X(x)$$

$$P[a< X\le b]=F_X(b)-F_X(a)$$

$$P[a\le X\le b]=\int_a^b f_X(x).dx$$

$$P[a\le X\le b, c\le Y\le d]=\sum_{y=c}^{d}\sum_{x=a}^{b} f_{XY}(x,y)$$

$$f_Y(y)=\left.\frac{f_X(x)}{\left|g'(x)\right|}\right|_{x=g^{-1}(y)}$$

$$P[a\le X\le b, c\le Y\le d]=\int_{y=c}^{d}\int_{x=a}^{b} f_{XY}(x,y)dxdy$$