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Declaramos  $x, n, \text{factorial}, E, \text{función}, E_2 \geq E, \text{VV}$

Imprimir " 1)  $\sin(x) = \sum_{n=0}^{\infty} [(-1)^n / (2n+1)!] x^{2n+1}$

2)  $\cos(x) = \sum_{n=0}^{\infty} [(-1)^n / (2n)!] x^{2n}$

3)  $\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n$

4)  $\arctan(x) = \sum_{n=0}^{\infty} [(-1)^n / 2n+1] x^{2n+1}$

5)  $e^x = \sum_{n=0}^{\infty} x^n / n!$  "

Entrada (solicitar): Función deseada, valor de  $X$  y Error.

if (función == 1) & &  $E_2 \geq E$ ) {

VV = sin(x)

doble factorial = 1

doble VC = 1

for ( $n = 0; n \leq 100, n++$ ) {

if ( $i > 0$ ) { factorial \*=  $i^n$  }

$$VC += \left[ \frac{\text{pow}(-1, n)}{(2n+1) * \text{factorial}} \right] * \text{pow}(x, 2n+1)$$

$$E_2 = \left| \frac{VC - VV}{VV} \right| * 100$$

if ( $E_2 < E$ ) { Imprimir el error alcanzado  
en "n" interación. }

break; }

}

if (Function == 2 & &  $E_2 > E) \{$

$$VV = \cos(x)$$

double factorial = 1

double VC = 1

for (n=0, n <= 100, n++) {

if (i > 0) { factorial \*= n }

$$VC += \left[ \frac{\text{pow}(-1, n)}{(2 \cdot n) * \text{factorial}} \right] * \text{pow}(X, 2 \cdot n)$$

$$E_2 = \left| \frac{VV - VC}{VV} \right| * 100$$

if ( $E_2 \leq E$ ) { Imprimir "N interacion"  
Break }  
}

if (Function == 3 & &  $E_2 > E) \{$

$$VV = \frac{1}{1-x}$$

double VC = 1

if (|x| < 1) { for (n=1, n <= 100, n++) {

$$VC += \text{pow}(x, n)$$

$$E_2 = \left| \frac{VV - VC}{VV} \right| * 100$$

if ( $E_2 \leq E$ ) { Imprimir "Error alcanzado  
en 'n' interacion"  
Break }  
}

g  
y

if (Función == 4 && E<sub>2</sub> > E) {

$$VV = \arctan(x)$$

double VC = 0

if (|x| < 1) { for (n = 0, n ≤ 100, n++) {

$$VC += \frac{[pow(-1, n)] * pow(x, 2n+1)}{(2n+1)}$$

$$E_2 = \left| \frac{VV - VC}{VV} \right| * 100$$

if (E<sub>2</sub> < E) { Imprimir "Error alcanzado en " n " ";  
Break; }

}

else { Imprimir "Función invalida para X " } }

if (función == 5 && E<sub>2</sub> > E) {

$$VV = \exp(x)$$

VC = 1

factorial = 1

for (n = 0, n ≤ 100, n++) {

if (i > 0) { factorial \*= n; }

$$VC += x^n / factorial$$

$$E_2 = \left| \frac{VC - VV}{VV} \right| * 100$$

if (E<sub>2</sub> < E) { Imprimir "Error alcanzado " n " ";  
Break; }

}