

Escuela Profesional de Ciencias de la Computación
Curso: Análisis Numérico
2024-01

Laboratorio 1

Grupo : CCOMP5-1
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Fecha : 14 de marzo
Alumno :

SOLUCIÓN

1. **(7 pts)** Encuentre el valor de W , siendo $a = (2, 4, 6)$, $b = (37^\circ, 53^\circ, 60^\circ)$, $c = \left(\frac{1}{13}, \frac{7}{37}, \frac{15}{49}\right)$

$$W = \frac{\left(\frac{a}{\sin(3b)} + \frac{c}{a}\right)^{3/5} + \tan b}{\sqrt{|\ln^3(a^2 - c) - a^{-3}c|}} - 1$$

```
>> a=[2,4,6];
>> b=[37,53,60]*pi/180;
>> c=[1/13,7/37,15/49];
>> W=((a./sin(3*b)+c./a).^ (3/5)+tan(b))./sqrt(abs(log(a.^2-c).^3-a.^(-3).*c))-1
W =
    4.7333e-01    2.1881e-01    1.5282e+09
```

2. **(6 pts)** Si

$$R(x, y) = \frac{x^2 \sin^2 x}{x^2 + y^2}$$

Encuentre la suma:

$$R(30^\circ, 1) + R(45^\circ, 3) + R(60^\circ, 5) + R(75^\circ, 7)$$

```
>> x=[30,45,60,75]*pi/180;
>> y=[1,3,5,7];
>> R=(x.^2.*sin(x).^2)./(x.^2+y.^2)
R =
    0.053792    0.032071    0.031516    0.031524

>> sum(R)
ans = 0.1489
```

3. **(7 pts)** Encuentre el valor de Z , siendo $m = (1, 2, 3)$, $n = (45^\circ, 60^\circ, 75^\circ)$, $o = \left(\frac{11}{23}, \frac{7}{3}, \frac{5}{4}\right)$

$$Z = 1 + \frac{\left(\sqrt{|\ln^2(m + o^3) - mo^{-2}|} + \frac{o}{m}\right)^{5/3} + \tan n}{\frac{o}{\sin(2n)}}$$

```
>> m=[1,2,3];
>> n=[45,60,75]*pi/180;
>> o=[11/23,7/3,5/4];
>> Z=1+((sqrt(abs(log(m+o.^3).^2-m.*o.^(-2)))+o./m).^(5/3)+tan(n))./(o./sin(2*n))
Z =

    13.1509    5.0556    3.0475
```