

Figura 1: \*  
Izquierda: GeoGebra

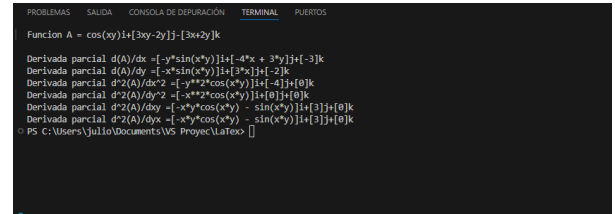
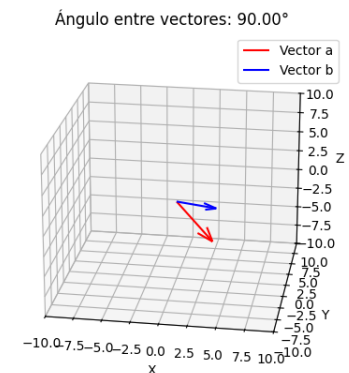
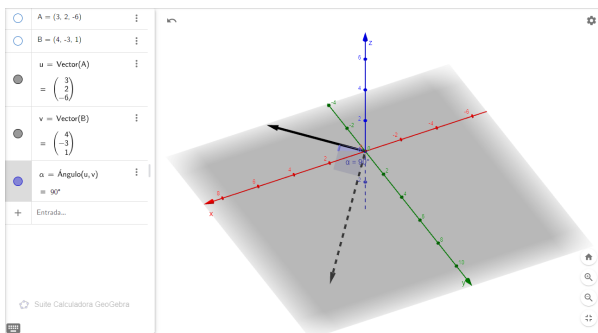
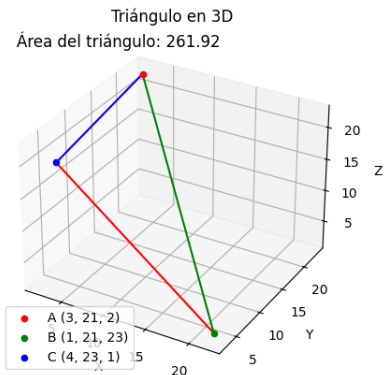
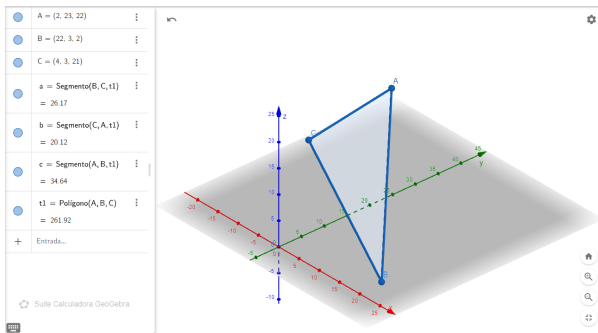
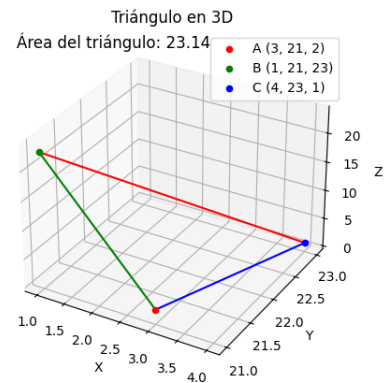
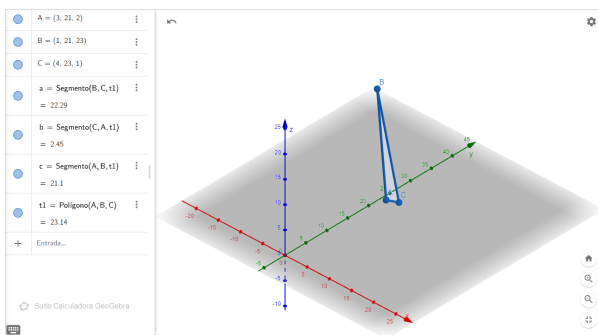
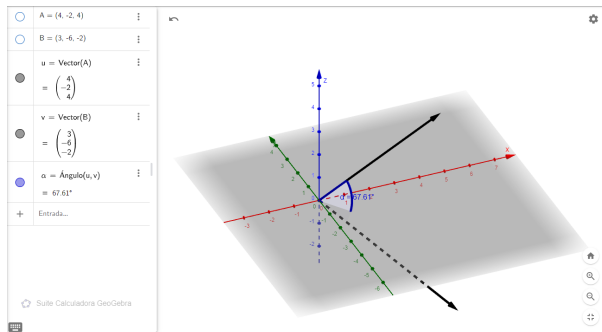
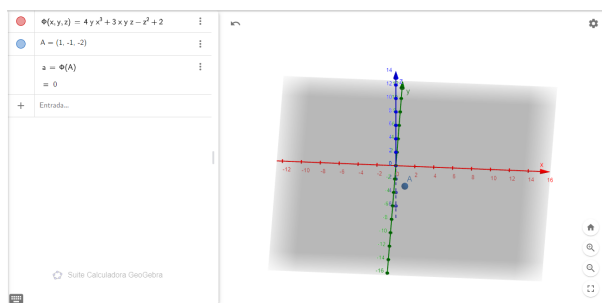
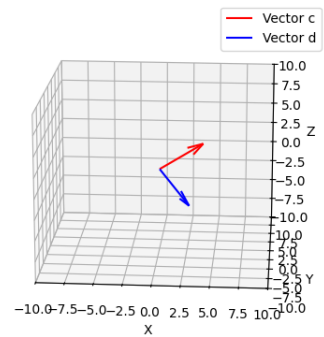


Figura 2: \*  
Derecha: Python

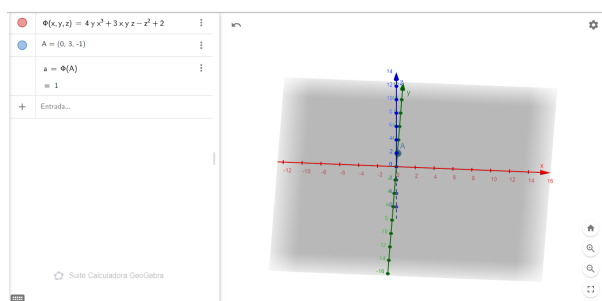
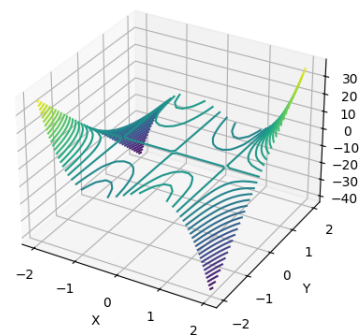




Ángulo entre vectores:  $67.61^\circ$



Campo escalar  $\phi(x, y, z) = 4yx^3 + 3xyz - z^2 + 2$   
 $\phi(1, -1, -2) = 0$



Campo escalar  $\phi(x, y, z) = 4yx^3 + 3xyz - z^2 + 2$   
 $\phi(0, 3, -1) = 1$

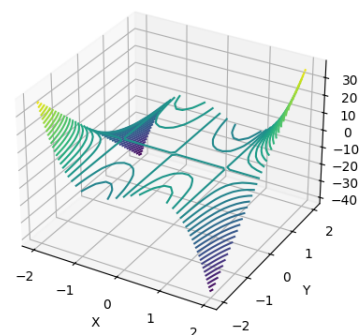
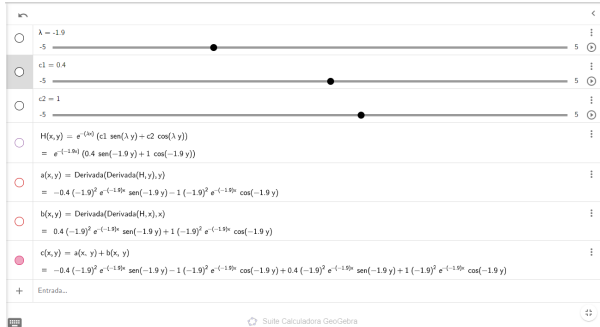


Figura 4: Izquierda imágenes generadas con GeoGebra y a la derecha los resultados en Python



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funcion escalar
H = e^(-lambda)*(C1*sin(lambda*y) + C2*cos(lambda*y))

d^2H/dx^2:
lambda**2*(C1*sin(y*lambda) + C2*cos(y*lambda))*exp(-x*lambda)

d^2H/dy^2:
(-C1*lambda**2*sin(y*lambda) - C2*lambda**2*cos(y*lambda))*exp(-x*lambda)

Suma de las derivadas parciales:
lambda**2*(C1*sin(y*lambda) + C2*cos(y*lambda))*exp(-x*lambda) + (-C1*lambda**2*sin(y*lambda) - C2*lambda**2*cos(y*lambda))*exp(-x*lambda) = 0
PS C:\Users\julio\Documents\VS Proyec\LaTeX>

```

```

PROBLEMAS SALIDA CONSOLA DE DEPURACIÓN TERMINAL PUERTOS
funcion escalar
A = A-2*I-3*yzj+xyz*k
Divergencia de A: 2*x*z + 4*x - 3*z
Rotacional de A: Matrix([[3*y], [-z**2], [0]])
PS C:\Users\julio\Documents\VS Proyec\LaTeX>

```

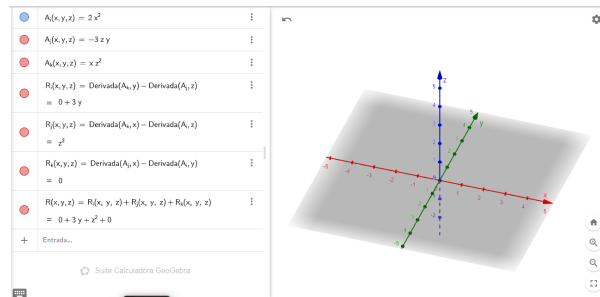
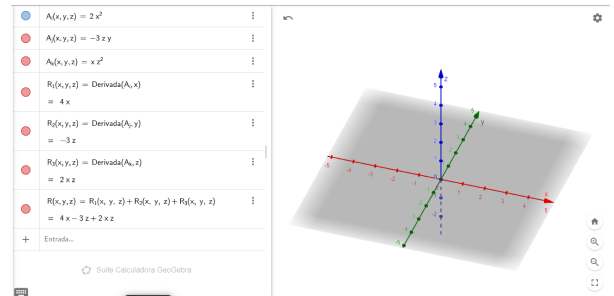


Figura 5: Izquierda imágenes generadas con GeoGebra y a la derecha los resultados en Python

