

```

Q 1.
# Stress When depth is constant
Q = float (input ("Enter the value of Load in kN: "))
N= int (input ("Number of data values of radial distance: "))
pi = 3.14159265359
Z = float (input ("Depth: "))
r = []
for i in range (1, N+1):
    print ("Enter radial distance in m".format (i))
    Value_r = float(input () )
    r.append (Value_r)
    Stress = ((3*Q)/(2*pi*Z*Z))*(((1 / (1+((Value_r/Z)**2))))**2.5)
    print("Stress:" , Stress, "kN/m^2")

```

Enter the value of Load in kN: 2500
 Number of data values of radial distance: 5
 Depth: 6
 Enter radial distance in m
 1
 Stress: 30.962130445358056 kN/m^2
 Enter radial distance in m
 2
 Stress: 25.479163627894877 kN/m^2
 Enter radial distance in m
 3
 Stress: 18.98033449112347 kN/m^2
 Enter radial distance in m
 4
 Stress: 13.22290223969301 kN/m^2
 Enter radial distance in m
 5
 Stress: 8.871775810212231 kN/m^2

```

Q 2.
# Stress when Radius is Constant
Q = float (input("Enter the value of Load in kN: "))
M= int (input ("Number of data values of depth: "))
pi = 3.14159265359
r = float (input("Radial Distance: "))
Z = []
for j in range (1, M+1):
    print ("Enter depth in Z".format(j))
    Value_Z = float(input())
    Z.append (Value_Z)
    Stress = ((3*Q)/(2*pi*Value_Z*Value_Z))*(((1 / (1+((r/Value_Z)**2))))**2.5)
    print("Stress:" , Stress, "kN/m^2")

```

Enter the value of Load in kN: 2500
 Number of data values of depth: 6
 Radial Distance: 5
 Enter depth in Z
 1
 Stress: 0.34629643854273023 kN/m^2
 Enter depth in Z
 2
 Stress: 2.1085135063018074 kN/m^2
 Enter depth in Z
 3
 Stress: 4.781320614736756 kN/m^2
 Enter depth in Z
 4
 Stress: 7.0974399578803125 kN/m^2
 Enter depth in Z
 5
 Stress: 8.440465463972316 kN/m^2
 Enter depth in Z
 6
 Stress: 8.871775810212231 kN/m^2

Q 3.

```
#Calculating the stress by Boussineq's Theory
Q=int(input("Enter the value of given load :"))
z=int(input("Enter the distance of vertical stress :"))
r = int(input("Enter the distance of horizontal stress:"))
stress = (3*Q*((1/(1+(r/z)**2))**2.5))/(2*3.14*(z**2))
print("The value of stress is",stress)
```

```
Enter the value of given load :2500
Enter the distance of vertical stress :6
Enter the distance of horizontal stress:5
The value of stress is 8.876275703713446
```