ES4-P4

February 16, 2025

[4]:
```python
# ES4 P4

# Swamee Jain Diameter

def dJain(roughness,length,gravity,flow,headloss,viscosity):

    term1 = roughness**(1.25)
    term2 = ((length*flow**2)/(gravity*headloss))**(4.75)
    term3 = viscosity*(flow**(9.4))
    term4 = (length/(gravity*headloss))**(5.2)
    dJain=0.66*((term1*term2+term3*term4)**(0.04))
    return dJain

viscosity = 1.22e-05
roughness = 16.7e-06
gravity = 32.2
discharge = 10.0
length = 2*5280
headloss = 20

print("Diameter =␣
 ↪",round(dJain(roughness,length,gravity,discharge,headloss,viscosity),3),"␣
 ↪feet ")
```

```
Diameter =  1.787  feet
```

[ ]: