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In [1]:
```
pd = float(input('Enter the value of pd:'))
n = int(input('Enter numbers of generators:'))
rows = n
cols = 3
```

```
Enter the value of pd:200
Enter numbers of generators:2
```

In [2]:
```
import numpy as np
```

In [3]:
```
fc= np.zeros((rows,cols))
for i in range(rows):
    for j in range(cols):
        value = float(input('Enter parameters of fuel cost:'))
        fc[i,j] = value
np.set_printoptions(suppress = True)
print(fc)
```

```
Enter parameters of fuel cost:0.05
Enter parameters of fuel cost:2
Enter parameters of fuel cost:1.5
Enter parameters of fuel cost:0.01
Enter parameters of fuel cost:3
Enter parameters of fuel cost:1.9
[[0.05 2.   1.5 ]
 [0.01 3.   1.9 ]]
```

In [4]:
```
pgen = []
fgen = []
num = 0
den = 0
```

In [5]:
```
for i in range(n):
    num = num + fc[i,1]/(2*(fc[i,0]))
    den = den + 1/(2*(fc[i,0]))
```

In [6]:
```
lam = (pd + num)/den
```

In [7]:
```
lam
```

Out[7]:
```
6.166666666666667
```

In [8]:
```
for i in range(n):
    x = (lam - fc[i,1])/(2*(fc[i,0]))
    pgen.append(x)
    y = fc[i,0]*pgen[i]**2 + fc[i,1]*pgen[i] + fc[i,2]
    fgen.append(y)
    print('unit {} generation = {} MW\n'.format(i,pgen[i]))
    print('unit {} cost = {} MW/H\n'.format(i,fgen[i]))
```

```
unit 0 generation = 41.666666666666664 MW

unit 0 cost = 171.63888888888886 MW/H

unit 1 generation = 158.33333333333334 MW

unit 1 cost = 727.5944444444444 MW/H
```

In [9]:
```
ft = sum(fgen)
print('total cost = {} $/H\n'.format(ft))
print('incrimental cost = {} $/H'.format(lam))
```

```
total cost = 899.2333333333333 $/H

incrimental cost = 6.166666666666667 $/H
```

In [ ]:
```

```