MATLAB CODE:

```
clc;
clear all;
h=[0.00142 7.2 510;0.00194 7.85 310;0.00482 7.97 78];
k=[1.1 1.0 1.2];
plower=[150 100 50];
pupper=[600 400 200];
pd=750;
n=length(plower);
disp('Fuel Cost Equation: F(p)=')
for i=1:n
    cost(i,:)=h(i,:)*k(1,i);
    a(i,1)=cost(i,1);
    b(i,1)=cost(i,2);
    c(i,1)=cost(i,3);
end
disp(cost)
disp('................................')
disp('Full load average cost=')
for i=1:n

fla(i,1)=(a(i,1)*pupper(1,i)^2+b(i,1)*pupper(1,i)+c(i,1))/pupp
er(1,i);
    disp(fla(i,1))
end
disp('................................')
p=fla;
p(:,2)=plower';
p(:,3)=pupper';
p=sortrows(p)
disp('................................')
p(1,4)=p(1,2)
p(1,5)=p(1,3)
for i=1:n-1
    p(i+1,4)=p(i+1,2)+p(i,4);
    p(i+1,5)=p(i+1,3)+p(i,5);
end
p
disp('................................')
for i=1:n
    if pd>=p(i,5)
        p(i,6)=p(i,3);
    end
    if pd<p(i,5)
        g=0;
        for j=1:i-1
            g=g+p(j,3);
        end
```

```
        p(i,6)=pd-g;
    end
end
for i=1:n
    if p(i,6)<0
        p(i,6)=0;
    end
end
g=p(:,6)
cost=sum([sum(a.*g.*g) sum(b.*g) sum(c)]);
cost
```

OUTPUT:

```
Fuel Cost Equation: F(p)=
    0.0016    7.9200  561.0000
    0.0019    7.8500  310.0000
    0.0058    9.5640   93.6000

..............................
Full load average cost=
    9.7922

    9.4010

   11.1888

..............................

p =

    9.4010  100.0000  400.0000
    9.7922  150.0000  600.0000
   11.1888   50.0000  200.0000

..............................

p =

    9.4010  100.0000  400.0000  100.0000
    9.7922  150.0000  600.0000         0
   11.1888   50.0000  200.0000         0
```

```
p =

    9.4010  100.0000  400.0000  100.0000  400.0000
    9.7922  150.0000  600.0000         0         0
   11.1888   50.0000  200.0000         0         0


p =

   1.0e+03 *

    0.0094    0.1000    0.4000    0.1000    0.4000
    0.0098    0.1500    0.6000    0.2500    1.0000
    0.0112    0.0500    0.2000    0.3000    1.2000

.................................

g =

   400
   350
     0


cost =

   7.3677e+03
```