clc

clear

format compact

disp('Problem: 11')

a = [2 -5 -2];

b = [8 3 -4];

c = [8 -4 4];

%i loops through each polynomial

for i = 1:3

%Calculates D

D = b(i)^2-4\*a(i)\*c(i);

if D > 0 %D is positive

%Calculates two roots

x1 = (-b(i) + sqrt(D))/(2\*a(i));

x2 = (-b(i) - sqrt(D))/(2\*a(i));

fprintf('\nThe equation has two roots,\nx1 = %3.5f and x2 = %3.5f\n',x1, x2)

elseif D == 0

%Calculates the one root

x = -b(i)/(2\*a(i));

fprintf('The equation has one root,\nx = %3.5f\n',x)

%No real roots to calculate

elseif D < 0 %No real roots

fprintf('The equation has no real roots.\n')

end

end

disp('Problem: 23')

%Given time\_calls and durs (rounded up as the problem asks)

time\_call = [1 2 3]; %time of the call

dur = [8.3, 34.5, 29.6]; %duration

dur = ceil(dur);

for i = 1:3

if time\_call(i) == 1 %If day

if dur(i) <= 10 %If it is daytime\_call

cost = .1\*dur(i); %Calculates cost given time and dur

elseif dur(i) <= 30 %If evening

cost = 1+.08\*(dur(i)-10);

else %If night

cost = 2.6 + 0.06\*(dur(i)-30);

end

elseif time\_call(i) == 2 %If evening

if dur(i) <= 10

cost = .07\*dur(i);

elseif dur(i) <= 30

cost = .7+.05\*(dur(i)-10);

else

cost = 1.7 + 0.04\*(dur(i)-30);

end

elseif time\_call(i) == 3 %If night

if dur(i) <= 10

cost = .04\*dur(i);

elseif dur(i) <= 30

cost = .4+.03\*(dur(i)-10);

else

cost = 1 + 0.02\*(dur(i)-30);

end

end

fprintf('\nCost: %3.2f',cost)

end

Command Window:

Problem: 11  
The equation has one root,  
x = -2.00000  
The equation has no real roots.  
  
The equation has two roots,  
x1 = -2.73205 and x2 = 0.73205  
Problem: 23  
  
Cost: 0.90  
Cost: 1.90  
Cost: 1.00