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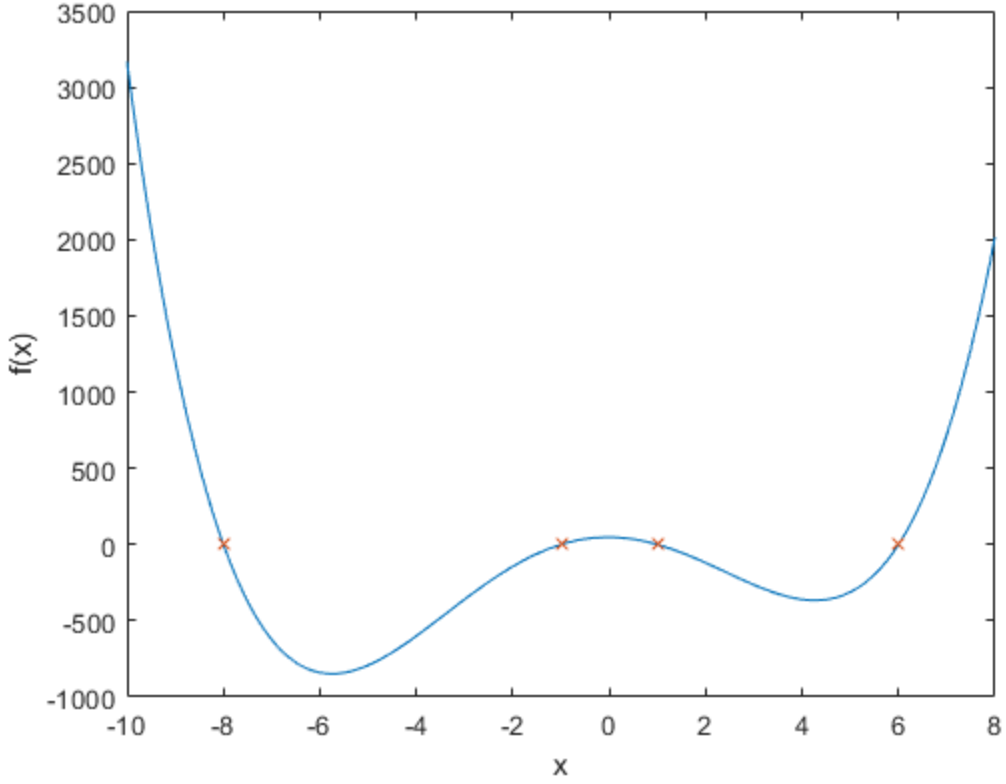
% Aditya Gopalan
% APPM 2360 Matlab Homework 2
% Due: Thursday, September 12, 2019

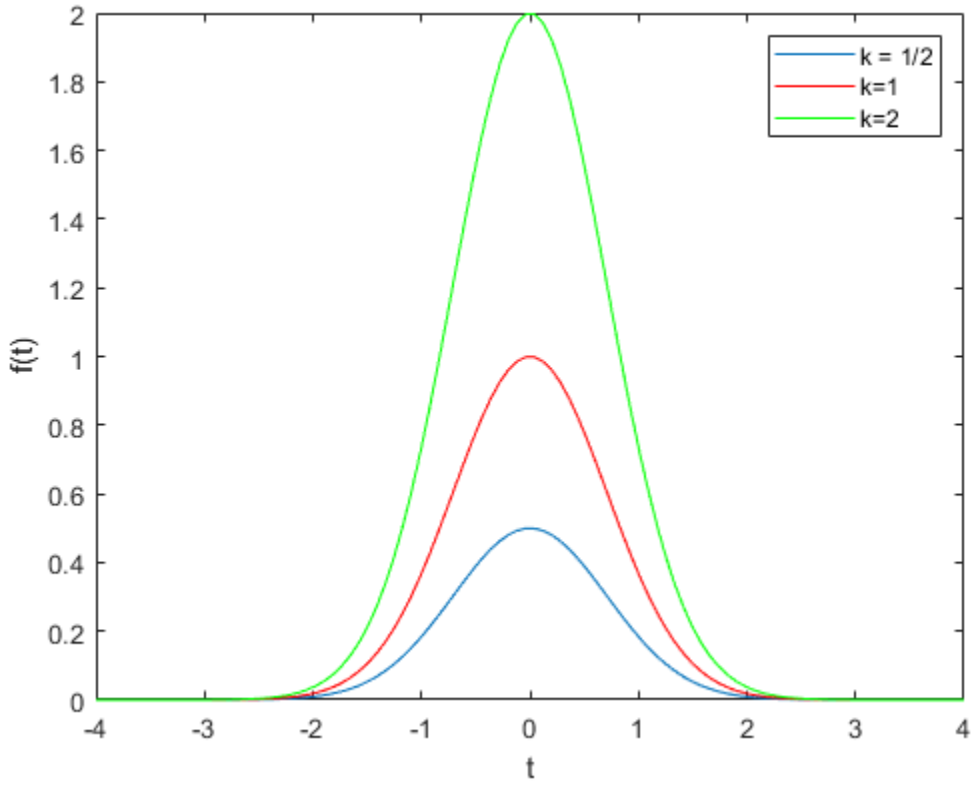
% Problem 1:
x = [-10:0.1:8];
f = (x-6).*((x.^2)-1).*(x+8);
figure(1)
plot(x,f)
hold on
index = find(f==0);
plot(x(index), f(index), "x")
xlabel('x')
ylabel('f(x)')
hold off

% Problem 2:
s = 0;
for k = 0:100
    s = s + ((-3)^-k)/(2*k+1);
end
s = s* sqrt(12);
disp('Problem #2 - part (b):')
disp('It is approaching pi')

% Problem 3:
f = @(k,t) k.*exp(-t.^2);
t = linspace(-4,4);
figure(2)
plot(t,f(1/2,t))
hold on
plot(t,f(1,t), 'r')
plot(t,f(2,t), 'g')
xlabel('t')
ylabel('f(t)')
legend('k = 1/2', 'k=1', 'k=2')
hold off
```

```
Problem #2 - part (b):
It is approaching pi
```


3500
3000
2500
2000
1500
1000
500
0
-500
-1000
f(x)
-10
-8
-6
-4
-2
0
2
4
6
8
x


2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
f(t)
-4
-3
-2
-1
0
1
2
3
4
t
k = 1/2
k=1
k=2

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