Chapter 3-HW Problems 6,8

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ENGI-111-01

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3 March 2024

Problem 6

```
epsilon = 8.854 * 10^-12;

d = input('Enter the distance (d) in meters: ');
L = input('Enter the length (L) in meters: ');
r = input('Enter the radius (r) in meters: ');

capacitance = (pi * epsilon * L) / log((d - r) / r);

fprintf('The capacitance (C) is: %e Farads\n', capacitance);
```

Problem 8

```
function celsius = fahreinheit_to_celcius(fahrenheit)
    celsius = (5/9)*(fahrenheit - 32);
end
```

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Chapter 3-HW Problems 25-26

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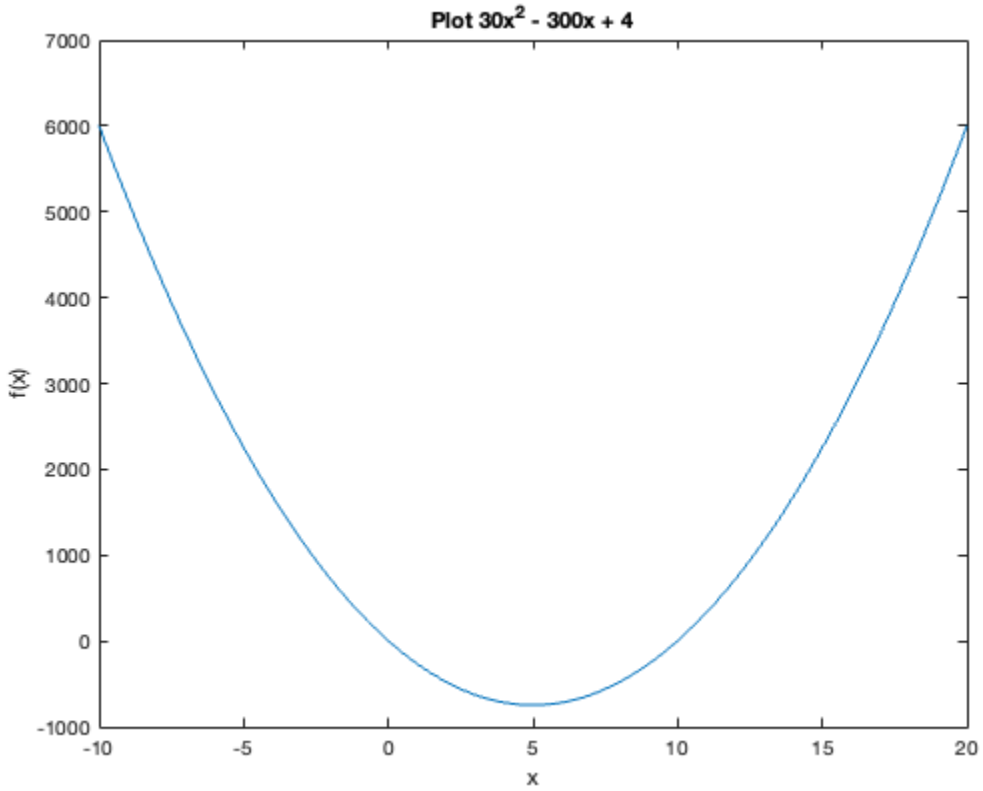
Problem 25

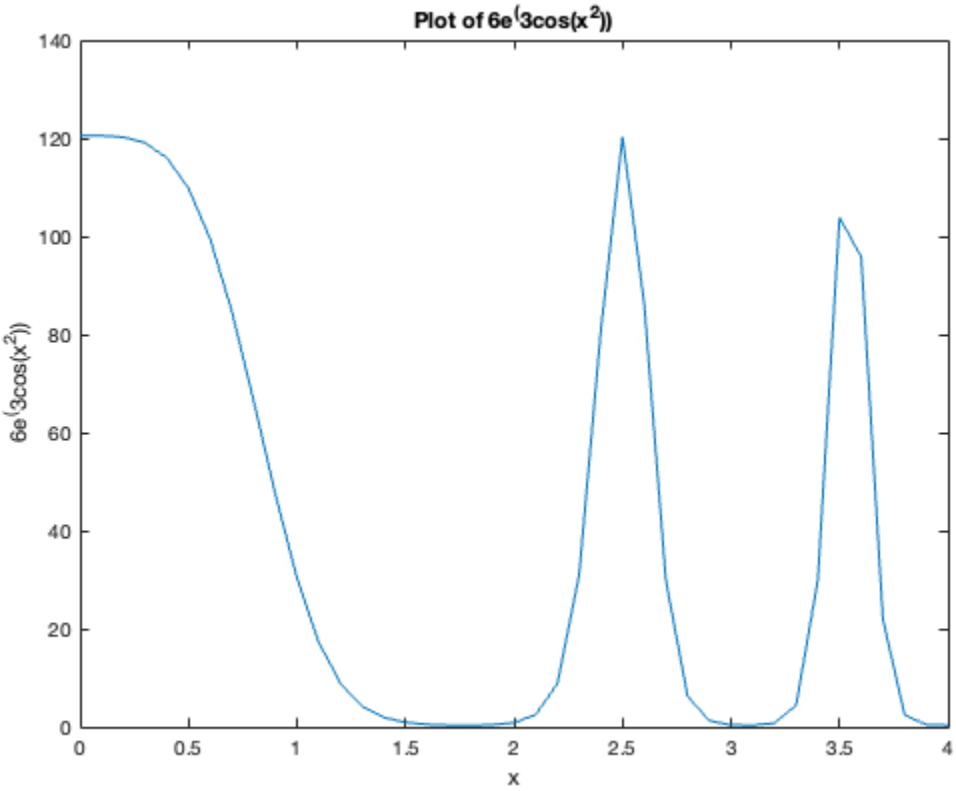
```
f = @(x) 30*x.^2 - 300*x + 4;

% a.
x = linspace(-10, 20, 500);
y = f(x);
plot(x, y);
xlabel('x');
ylabel('f(x)');
title('Plot 30x^2 - 300x + 4');
% b.
x_min = fminbnd(f, -10, 20);
y_min = f(x_min);
fprintf('The minimum of the function occurs at x = %f and y = %f\n', x_min,
y_min);
```

```
The minimum of the function occurs at x = 5.000000 and y = -746.000000
```



Problem 26

```
h = @(z) 6*exp(z);
g = @(y) 3*cos(y);
f = @(x) x.^2;
composed_function = @(x) h(g(f(x)));
x_values = 0:0.1:4;
y_values = composed_function(x_values);
plot(x_values, y_values);
xlabel('x');
ylabel('6e^(3cos(x^2))');
title('Plot of 6e^(3cos(x^2))');
```



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