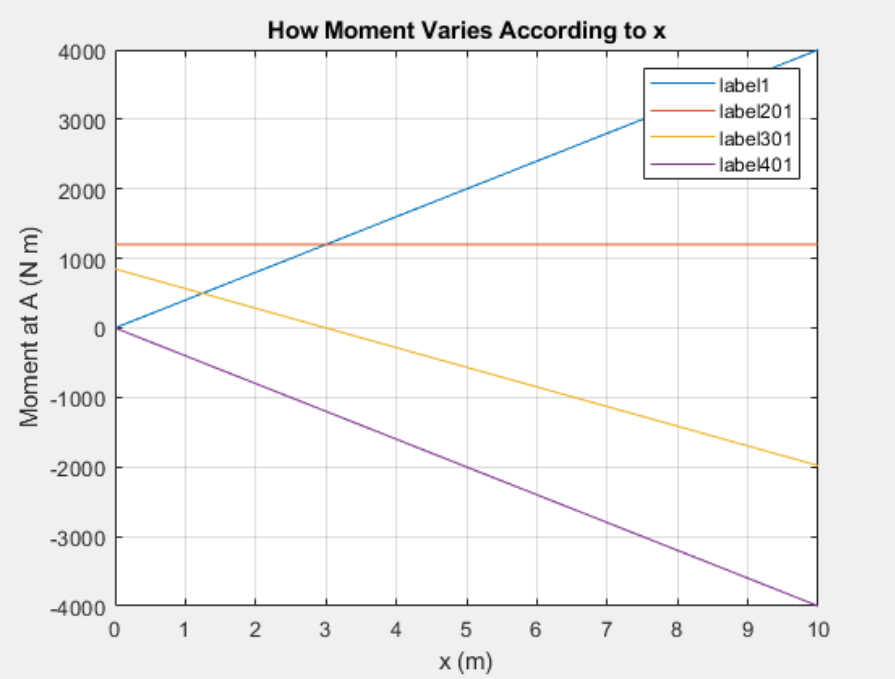
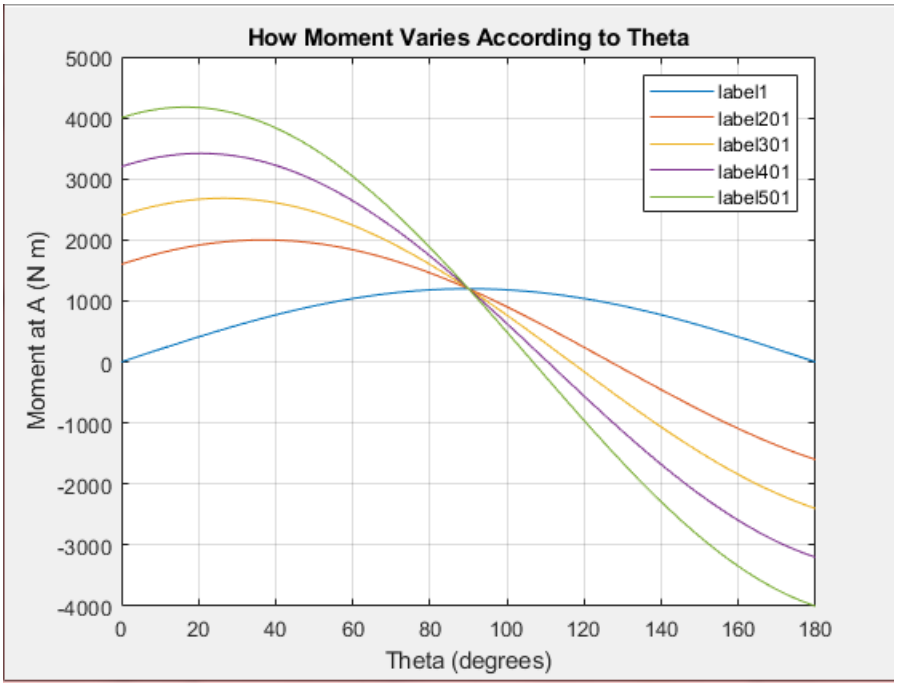
Graphs:





Code:

```
M=[];
theta=linspace(0,180,401);
x=linspace(0,10,501);

for i_theta=1:length(theta)
```

```
    for i_x=1:length(x)
        M(i_theta,i_x)=400.*sind(theta(i_theta)).*3 +
400.*cosd(theta((i_theta))).*(x(i_x));
    end
end

for n=[1 201 301 401]
    plot(x,M(n,:))
    grid on
    hold on
end
title('How Moment Varies According to x');
xlabel('x (m)');
ylabel('Moment at A (N m)');
label1=sprintf('%s=%3.0f%s','\theta',theta(1),'\circ');
labe201=sprintf('%s=%3.0f%s','\theta',theta(201),'\circ');
labe301=sprintf('%s=%3.0f%s','\theta',theta(301),'\circ');
labe401=sprintf('%s=%3.0f%s','\theta',theta(401),'\circ');
legend('label1','label201','label301','label401');
hold off;
figure;

for n=[1 201 301 401 501]
    plot(theta,M(:,n))
    grid on
    hold on
end
title('How Moment Varies According to Theta');
xlabel('Theta (degrees)');
ylabel('Moment at A (N m)');
label1=sprintf('x=%2.1f m',x(1));
label201=sprintf('x=%2.1f m',x(201));
label301=sprintf('x=%2.1f m',x(301));
label401=sprintf('x=%2.1f m',x(401));
label501=sprintf('x=%2.1f m',x(501));
legend('label1','label201','label301','label401','label501')
```

Questions:

1) Theta = 90 degrees as x varies is represented in the first graph with the red line labelled ‘label201’. My results make sense because when theta = 90 degrees, the force is perpendicular to the surface. Thus, as x varies, the moment at A will remain constant.
2) When x = 0 when theta varies, my results make sense because the 400(x)costheta part of the moment calculation would be 0 and the 3*400sintheta calculation would change as degree changes.
3) When x approaches infinity, I would expect the maximum moment to occur when theta = 0 degrees. My results indicate that this will happen as the theta=0 degree line is the only one that is increasing linearly when x increases.
1) If I wanted to have the moment of A completely independent of x, I would keep x constant and only change theta.
2) I would set x=0m and theta=0 or 180 degrees.